

Plaintiff is the owner and sole inventor listed on the '199 Patent, which is embodied in, among other forms, a laser used in LASIK® corrective vision procedures. Plaintiff alleges that Defendant infringed the '199 Patent and Plaintiff accordingly seeks damages, an injunction, and attorney's fees and costs. Compl. ¶¶ 13-14.

Plaintiff filed suit against Defendant pursuant to 35 U.S.C. § 281 et seq., claiming that Defendant has infringed seven independent claims and twenty nine additional dependent claims of the '199 Patent.¹ (Pls.' Opening Claim Construction Br. 1). Plaintiff states that Defendant's sale of the IntraLase FS device, which is used for LASIK® eye surgery, directly infringes these claims in the '199 Patent. (Id.) Defendant responds that the '199 Patent is either invalid and/or will not be infringed by Lupin's ANDA Products.

Defendant furthermore asserted counterclaims against Plaintiffs, seeking declaratory judgment that Plaintiff's '199 Patent is invalid and/or that Defendant's products do not infringe Plaintiff's patent. (Def. Answer & Countercls. ¶¶ 1-11).

B. Brief Description of the Product at Issue

At issue in this case is the construction of terms contained in the claims of the '199 Patent that are allegedly being infringed by a surgical laser developed and distributed by Defendant. The core of the invention in the '199 Patent is a method for modifying materials, such as bodily tissues, using pulsed laser bursts at short and frequent intervals. (Pl. Opening Claim Construction Br. 5-6). Plaintiff's invention claims novelty because it improves on the prior pulsed laser systems by reducing the collateral damage caused by the pulsed laser system to tissues surrounding the target area. Id. Plaintiff's method of achieving this more precise modification of the target area was through utilizing repeated laser pulses to continually modify

¹ Specifically, Plaintiff asserts that Defendant has infringed claims 1, 2, 5-7, 10-15, 20-25, 27, 28, 30, 34, 50-54, 61, 67, 71, 77, 80-83, 85, and 86 of the '199 Patent.

the target area and then allowing the residual heat, or thermal energy, in the area to dissipate.

Id.² As discussed below, the disputed terms primarily concern the character and utilization of the laser to achieve the claimed result.

C. Procedural History

On March 5, 2009, Plaintiff filed a Complaint alleging that Defendant infringed the ‘199 Patent. On April 6, 2009, Defendant filed an answer and counterclaims. On July 24, 2009, Defendant filed its first request for ex parte reexamination with the United States Patent and Trademark Office (“PTO”). This first request for reexamination focused on two pieces of prior art, arguing that when viewed in a new light, these pieces created a substantial new question regarding patentability. The PTO disagreed and rejected Defendant’s application for a reexamination. On October 28, 2009, Defendant filed a second request for reexamination, citing one piece of prior art that it had cited in the initial reexamination application as well as three other pieces of prior art not previously cited. The request for reexamination was granted by the PTO in December of 2009.

In Defendant’s request for reexamination, Defendant argued that there was a substantial question of patentability with regard to independent claim 1 and its dependent claim 2 of the ‘199 Patent and that these claims should be invalidated as anticipated and/or obvious in light of the prior art. On October 26, 2010, the PTO issued a reexamination certificate that affirmed, as amended, the patentability of claims 1 to 4 of the ‘199 Patent. See 7826th Reexamination Certificate, U.S. Patent 6,482,199 C1. In addition, the PTO allowed additional new claims 17 through 86 of the ‘199 Patent.³

² The Abstract of the ‘199 Patent states that the patented product is “[a] method and apparatus . . . for fast precise material processing and modification which minimizes collateral damage.” The invention claims to achieve this result by “[u]tilizing optimized, pulsed electromagnetic energy parameters.” (Abstract, ‘199 Patent).

³ The PTO did not reexamine the patentability of claims 5 through 16 of the ‘199 Patent.

II. Legal Standard for Claim Construction

To prove patent infringement, a plaintiff must demonstrate that the accused device or method contains all the limitations of the claimed invention. Johnson Worldwide Assocs., Inc. v. Zebco Corp., 175 F.3d 985, 988 (Fed. Cir. 1995). As a prerequisite to the ultimate disposition, however, a court must determine as a matter of law the meaning and the scope of the disputed patent's claims. (Id.). Claim construction is a question of law; therefore, it is “[t]he duty of the trial judge . . . to determine the meaning of the claims at issue.” Exxon Chem. Patents, Inc. v. Lubrizoil Corp., 64 F.3d 1553, 1555 (Fed. Cir. 1995).

The scope of a patented invention is defined by the enumerated claims that comprise the patent. Phillips v. AWH Corp., 415 F.3d 1303, 1312 (Fed. Cir. 2005). Absent an express intent to impart a novel meaning, the words of a claim are given their "ordinary and customary meaning," which is defined as "the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention." Id. at 1312-13 (citations omitted). The court must adopt the perspective of one who "read[s] the words used in the patent documents with an understanding of their meaning in the field, and [who has] knowledge of any special meaning and usage in the field." Id.

Intrinsic evidence, which consists of materials within the patent itself, including the claims, the specification, and the prosecution history, is the key initial component of claim construction. Id. at 1314. Claim construction begins with intrinsic evidence—“[f]irst and foremost . . . the language of the claims themselves,” since the claim language is chosen by the inventor to distinctly claim the subject matter of the invention. ACTV, Inc. v. Walt Disney Co., 346 F.3d 1082, 1088 (Fed. Cir. 2003). “Because the claim language is chosen by the patentee to

particularly point out and distinctly claim the subject matter of the invention, the claim terms chosen by the patentee carry a presumption that they mean what they say and have the ordinary meaning that would be attributed to those words by persons skilled in the relevant art.” Id. (internal citations omitted).

Furthermore, the specification can "act[] as a dictionary when it expressly defines terms used in the claims or when it defines terms by implication." Vitronics Corp. v. Conceptoronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996). It is also "entirely appropriate for a court, when conducting claim construction, to rely heavily on the written description for guidance as to the meaning of the claims." Phillips, 415 F.3d at 1317.

Secondarily, a court may draw on extrinsic evidence regarding "relevant scientific principles, the meaning of technical terms, and the state of the art." Id. Extrinsic evidence derives from sources outside the patent and prosecution history, such as expert testimony, dictionaries, or treatises, and although it may be useful, "it is unlikely to result in a reliable interpretation of patent claim scope unless considered in the context of the intrinsic evidence." Id. at 1319. Moreover, the Federal Circuit has cautioned that "the use of the dictionary may extend patent protection beyond what should properly be afforded by the inventor's patent." Id. at 1322.

III. Terms for Which All Parties Agree that the Court Should Adopt a Construction

The following subsections present claim terms that the parties agree require construction. Subsection A presents terms for which the parties agree on the proper construction, and Subsection B presents terms for which the parties disagree on the proper construction. Because all parties agree that the terms identified in these subsections require construction, these terms

are properly considered “at issue” in this litigation and the Court will adopt constructions of these terms.

A. Terms for Which There Is Both Agreement that the Court Should Adopt a Construction, and Agreement by Both Parties as to the Construction the Court Should Adopt.

Plaintiff and Defendant have agreed on the construction of the terms “[modification] threshold volumetric power density,” “power density threshold for material ablation,” “deposited volumetric power density,” “power densities within the region targeted for modification,” “commutative ablation,” “absorption characteristic of the material . . . at the target region,” “absorption of the target region,” “scattering characteristic of the material at the target region,” and “scattering of the target region.” Both Plaintiff and Defendant urge the Court to adopt the agreed-upon constructions. These claim terms appear in claims 1, 5, 80-83, 85, and 86 of the ‘199 Patent. Pl. Opening Br. 10. Plaintiff asserts that Defendant has infringed all of these claims, among other claims of the ‘199 Patent.

Given the role these five terms play in the Patents at issue in this case, the Court will construe the terms. Further, because Plaintiff and Defendant agree on a set of constructions, the Court will adopt the agreed-upon constructions. These constructions are reflected in the following table. (Pls.’ Opening Claim Construction Br. 10).

Table 1

Claim Term	Claim(s) in Which Term Appears	Agreed-Upon Construction
“[modification] threshold volumetric power density”	1, 80-83	“The minimum energy per unit time per unit volume necessary for material modification.”
“power density threshold for material ablation”	5	
“deposited	1, 80-83	“Deposited energy per unit time per unit

volumetric power density”		volume.”
“power densities within the region targeted for modification”	5	
“commutative ablation”	5	“The combined effect of successive ablation.”
“absorption characteristic of the material . . . at the target region”	1, 80-83	“A characteristic of the target material that determines the absorption of the electromagnetic energy by the target material at the target region.”
“absorption of the target region”	85, 86	
“scattering characteristic of the material at the target region”	1, 80-83	“A characteristic of the target material that determines the scattering of the electromagnetic energy by the target material at the target region.”
“scattering of the target region”	85, 86	

B. Terms for Which There is Agreement that the Court Should Adopt a Construction, but Where Plaintiffs and Defendants Present Competing Constructions:

Plaintiff and Defendant dispute the construction of several claim terms in the ‘199 Patent. See Joint Claim Construction and Prehearing Statement, Ex. A. “[I]t is the court’s duty to resolve . . . a fundamental dispute regarding the scope of a claim term” O2 Micro Int’l Ltd. v. Beyond Innovation Tech. Co., 521 F.3d 1351, 1362 (Fed. Cir. 2008). Because each party presents a different proposed construction of these fifteen claim terms, and both Plaintiff and Defendant agree that the Court should adopt constructions (albeit different constructions) of each term, the Court finds that there is a “fundamental dispute” concerning these terms. Accordingly, the Court construes each term as set forth below. The parties’ proposed constructions for each disputed claim term are listed in Table 2 below.

Table 2

#	Claim term	Recited in or Required by Claims ⁴	Plaintiff	Defendant
1	“operating the source and manipulating the beam parameters”	1, 2, 20, 21, 22, 23, 25, 27, 28, 30, 34, 50-54, 61, 67, 71, 77, 80-83	Operating the source and setting or adjusting the beam parameters prior to or during the operation of the source.	Varying the wavelength, energy, power, spot size, focal volume, duration, or repetition rate of an electromagnetic beam while irradiating the target material.
	“manipulating beam parameters”	1, 2, 20, 21, 22, 23, 25, 27, 28, 30, 34, 50-54, 61, 67, 71, 77, 80-83		
	“manipulating parameters of the beam”	5, 6, 7, 10-15		
	“adjusting characteristics of the electromagnetic radiation beam”	85, 86		
	“varying at least one of the following beam parameters”	1, 2, 20-25, 27, 28, 30, 34, 50-54, 61, 67, 71, 77, 80-83		
2	“interaction energy transients”	1, 2, 20-25, 27, 28, 30, 34, 50-54, 61, 67, 71, 77, 80-83, 85, 86	Energy transients in the target material that are created by interaction of electromagnetic radiation with the target material.	A temporary state of matter, other than plasma, that is initiated by the interaction of electromagnetic beam energy with the target. Interaction energy transients would normally include plasma, but in the application for the patent, Neev disclaimed plasma from

⁴ Independent claims are listed in bold typeface, whereas dependent claims are listed in regular typeface.

				interaction energy transient.
3	“preparing the target region of the target material by spatially or temporally varying at least one of an absorption characteristic of the material or a scattering characteristic of the material at the target region”	1, 2, 20-25, 27, 28, 30, 34, 50-54, 61, 67, 71, 77	Altering the absorption or scattering characteristic of the target region of the target material in time or space, prior to irradiating the region with the electromagnetic pulses.	Changing the absorption or scattering characteristics of the target region by introducing a substance, such as a doping agent.
4	“operating the source at a pulse repetition rate greater than 0.1 pulses per second until a target volume in the target region has been modified”	1, 2, 20-25, 27, 28, 30, 34, 50-54, 61, 67, 71, 77, 80-83	Operating the source at a pulse repetition rate greater than 0.1 pulses per second until a target volume in the target region has been modified.	Firing multiple electromagnetic pulses at a rate greater than one pulse every ten seconds at the same target region until a desired volume within that target region has been modified.
5	“allowing interaction energy transients caused by the electromagnetic pulses to substantially decay so that material modification is effected”	1, 2, 20-25, 27, 28, 30, 34, 50-54, 61, 67, 71, 77, 80-83	Allowing energy transients in the target material that are created by interaction of electromagnetic radiation with the target material and caused by the electromagnetic pulses incident on the target material to substantially decay such that the material is modified.	Allow(ing) the decay, via the passage of time, of an interaction energy transient, caused by the delivery of a single electromagnetic pulse to the target region, prior to subsequent irradiation, so that the material is modified.
	“allow interaction energy transients caused by the pulsed electromagnetic radiation beam to decay sufficiently such that the material can be modified”	85, 86	Allow energy transients in the target material that are created by interaction of electromagnetic radiation with the target material and caused by the electromagnetic pulses incident on the target material to	

			substantially decay such that the material can be modified.	
6	“cumulative residual thermal energy left in the material by a pulse train”	5-7, 10-15	Remaining accumulated thermal energy left in the target material by a pulse train.	<p>“Thermal energy” means energy from the electromagnetic radiation that was converted to heat energy resulting in a temperature increase.</p> <p>A “pulse train” is the delivery of multiple exposures of EM radiation to the same target region in the target material.</p> <p>“Cumulative residual thermal energy left in the material by a pulse train” refers to the residual thermal energy that builds up at a particular target region in the target material after multiple exposures of EM radiation by the pulse train each depositing a certain amount of residual thermal energy.</p>

The ‘199 Patent is structured with two major independent claims, claims 1 and 5, from which the majority of the 86 claims depend. Independent claims 1 and 5 claim a method of operating a laser to achieve the desired material modification and ablation. Claims 79 through 83 are also independent method claims for operating a laser. Claims 84 through 86 are independent claims directed to an apparatus for performing the method, rather than the method itself, and were added during the reexamination proceedings.

Claim 1 and its numerous dependent claims are the major claims at issue in this case. Claim 1 consists of a preamble and five separate elements. The claim is directed to a method of using a pulsed laser to modify a target material in a controlled and variable speed manner. The claim recites five elements that are necessary to achieving this result. Element (a) requires providing a source for the pulsed laser. Element (b), which was added during reexamination, requires the preparation of the target material in a particular manner. Element (c) requires the operation of the laser source and adjusting the parameters until the material is able to be modified. Element (d) describes a pause between pulses to allow the energy to decay and the material to be modified. Element (e) requires the pulse to be operated at a rate of greater than one pulse every 10 seconds until the target material has been modified. Several of the claim terms in the preamble of Claim 1 and each of its five elements are at issue in this case.

The disputed claim terms will each be discussed in turn below.

1. “operating the source and manipulating the beam parameters,” “manipulating beam parameters,” “manipulating parameters of the beam,” “adjusting characteristics of the electromagnetic radiation beam,” and “varying at least one of the following beam parameters”

Plaintiff’s and Defendant’s claim construction dispute regarding these terms centers around the relevant time period during which the laser beam must be adjusted. Plaintiff’s construction allows for the beam to be adjusted “prior to or during the operation of the source,” whereas Defendant’s construction requires the beam to be adjusted “while irradiating the target material.” Defendant notes that several portions of the specification discuss the adjustment of the beam settings in conjunction with the operation of the laser pulse source. Def. br. at 17-19 (citing, inter alia, ‘199 Patent at col.7 ll.39-58, col.8 ll.24-37, col.9 ll.21-35). Defendant argues

that because “the specification teaches monitoring the amount of material being ablated and using this information to reduce the laser repetition rate,” the specification envisions adjustment of the laser pulse rate simultaneously with the operation of the laser source. Def. br. at 19. Plaintiff counters that while the beam parameters may be varied during operation, the specification never requires that the laser beam parameters be varied during operation of the source. Pl. br. at 10.

The Court adopts Plaintiff’s construction of these claim terms. The ‘199 Patent specification provides that “[p]referably, at least one characteristic of the material to be ablated is first determined *and then* a pulse [or pulse rate] of the directed energy is defined.” ‘199 Patent, col.6 ll.7-9, 60-65 (emphasis added). The specification further provides that the desired ablation “may be accomplished using . . . a single pulse.” *Id.* col.9 ll.19-20. These portions of the specification assume that the beam parameters may be adjusted prior to operation of the laser source. Therefore, Plaintiff’s construction of the claim terms as “setting or adjusting the beam parameters *prior to* or during the operation of the source” clarifies the meaning of the terms in a manner supported by the specification.

2. “interaction energy transients”

The parties’ central dispute regarding this claim term focuses on whether the term includes plasma within its purview. Defendant argues that Plaintiff previously disclaimed plasma from the scope of the patent during prosecution in order to distinguish Plaintiff’s invention from prior art. Defendant cites to the prosecution history of the ‘199 Patent, during which the examiner purportedly understood the ‘199 Patent to distinguish between the “interaction energy transients” of the ‘199 Patent and the “plasma” disclosed in a previously issued patent, U.S. Patent No. 5,720,894 (filed Jan. 11, 1996) (“the ‘894 Patent”), issued to Neev

et al. Def. br. at 26 (citing Def. Ex. C. at 2). Plaintiff responds that while the patent examiner may have understood there to be such a distinction, Plaintiff's silence in the face of the examiner's statement does not constitute a disavowal of claim scope. Pl. br. at 16.

The Federal Circuit has held that "silence regarding statements made by the examiner during prosecution, without more, cannot amount to a 'clear and unmistakable disavowal' of claim scope." Salazar v. Procter & Gamble Co., 414 F.3d 1342, 1345 (Fed. Cir. 2005). Furthermore, the term "plasma" is specifically cited in the claims added during reexamination, including Claim 21. '199 Patent Reex. Cert. col.2 ll.56-59. Therefore, the Court adopts Plaintiff's construction of "interaction energy transients" as "energy transients in the target material that are created by interaction of electromagnetic radiation with the target material."

3. "preparing the target region of the target material by spatially or temporally varying at least one of an absorption characteristic of the material or a scattering characteristic of the material at the target region"

The parties disagree as to the method of preparing the target region of the material to be modified or ablated. Defendant's construction proposes that the claim term be construed as "changing the absorption or scattering characteristics of the target region by introducing a *substance, such as a doping agent.*" Def. br. at 22 (emphasis added). Plaintiff argues that this limitation of the claim term is not proper, as the target material could be modified by mechanical means that do not require the introduction of a chemical substance. Pl. br. at 14. For the reasons below, the Court adopts Plaintiff's construction.

Defendant argues that their construction is proper since the specification does not support a method of preparing the target material through a means other than through introduction of chemical substances. Plaintiff cites to several portions of the patent specification that describe

different embodiments for preparation of the target material. Id. (citing '199 Patent at col.19 ll.41-53, col.20 ll.7-12, col.40 ll.46-55, col.41 ll.40-48, col.42 ll.24-43, col.45 ll.22-29).

However, none of these examples provide for preparation of the material through mechanical means, as Plaintiff's proposed construction seeks to encompass. Moreover, both Plaintiff, as well as Plaintiff's patent prosecution counsel in the reexamination proceedings, stated during deposition that they could not point to any portion of the specification that describes using a mechanical means for modifying the target material.⁵

Where "[a]ll the descriptions of the invention" in a patent specification concern one particular embodiment, it is proper to limit a claim to that embodiment. See Hologic, Inc. v. SenoRx, Inc. 639 F.3d 1329, 1335 (Fed. Cir. 2011) (finding that the "specification ma[de] clear what the inventors contemplated as their invention" because of the similarity between the examples provided in the specification). Defendant argues that its construction of the claim term as "changing the absorption or scattering characteristics of the target region by introducing a substance, such as a doping agent," would be consistent with the specification, which only provides examples of chemical means of modifying the target material.

Plaintiff responds that claims 57 and 58, which depend from independent claim 1, provide examples "wherein preparing the target region of the target material" may be accomplished via mechanical means. Specifically, claim 57 teaches that the target material can be prepared by "creating compression zones with the target region," and claim 58 teaches that the target material can be prepared by "changing a density of the target material at the target

⁵ Plaintiff argues that Defendant's use of Plaintiff's reexamination counsel's deposition testimony is not proper because Defendant has not qualified Plaintiff's reexamination counsel as an expert such that his opinion on claim construction is admissible. Pl. resp. br. at 13 n.5. The Court finds that Plaintiff's counsel's testimony is admissible as a party admission under Federal Rule of Evidence 801(d)(2)(B), and that Plaintiff is bound by the representations of his counsel.

region.” ‘199 Patent at col.5 ll.32-43. The Court agrees with Plaintiff that claims 57 and 58 recite means of preparation that include mechanical means. Defendant argues in response that claims 57 and 58 are not supported by the specification, and therefore must be limited by the specification.⁶ While it is true that ambiguous language in a claim term may be limited when all the examples in the specification concern one specific embodiment, see Hologic, 639 F.3d at 1335, the duty of the Court while construing the terms is to “[f]irst . . . look to the words of the claims themselves . . . to define the scope of the patented invention.” Vitronics, 90 F.3d at 1582. Therefore, since claims 57 and 58 of the ‘199 Patent specifically describe mechanical means of modifying the target material, it would be improper for this Court to limit the claim terms beyond their plain meaning by adopting Defendant’s construction. Accordingly, this Court adopts Plaintiff’s construction of the claim term as “altering the absorption or scattering characteristic of the target region of the target material in time or space, prior to irradiating the region with the electromagnetic pulses.”

4. “operating the source at a pulse repetition rate greater than 0.1 pulses per second until a target volume in the target region has been modified”

The parties’ dispute about this claim term focuses on whether the operation of the laser source requires “firing multiple electromagnetic pulses,” as Defendant claims, or whether the method of operating the laser source may involve only one pulse, as Plaintiff claims. In support

⁶ Defendant argues alternatively that the Court should adopt their claim construction as to this term because means of modifying the target material envisioned by claims 57 and 58 are not supported by the specification, and are therefore invalid for lack of written description and/or enablement under 35 U.S.C. § 112. While this Court’s findings regarding the specification’s teachings are not necessarily inconsistent with Defendant’s allegations, see discussion supra Part III.B.3, the Court’s duty during a Markman hearing is limited to construction of the claim terms. Allegations regarding the validity of patent claims are to be raised and argued at a later time. Therefore, the Court does not reach the merits of Defendant’s invalidity claim for lack of written description as to claims 57 and 58.

of Defendant's construction, Defendant refers to a portion of the specification in which Plaintiff stated,

The inventor recognized that the deposition of a *large number of pulses* within a short time duration, which corresponds to high pulse *repetition rate*, is only possible because of the condition which the present invention imposes on the interaction, namely, that most of the energy deposited by a *single pulse* will be removed by the ablation products ejected from the material due to the action of the very same pulse.

'199 Patent, 21:35-43 (emphasis added). Defendant argues that this explanation of the invention makes sense only if understood as teaching that more than one pulse must be fired at the target region to achieve the desired ablative effect. Def. br. at 28-29.

Plaintiff responds that the claim term itself requires operation of the laser source only "until a target volume in the target region has been modified." Pl. resp. br. at 18. Plaintiff argues further that nowhere in the patent specification is there an explicit requirement that more than one pulse be used to modify the target material.

Indeed, the specification explicitly states that the desired modification can be accomplished "using either a *single pulse*, or a plurality of pulses, as desired." '199 Patent col.9 ll.19-20 (emphasis added). Based on the clear language of the specification, therefore, the Court adopts Plaintiff's construction of the claim term as "operating the source at a pulse repetition rate greater than 0.1 pulses per second until a target volume in the target region has been modified."

5. "allowing interaction energy transients caused by the electromagnetic pulses to substantially decay so that material modification is effected" and "allow interaction energy transients caused by the pulsed electromagnetic radiation beam to decay sufficiently such that the material can be modified"

The main dispute regarding these claim terms focuses on whether Defendant's proposed construction, which includes the limitations that the material modification be "*caused by the*

delivery of a *single* electromagnetic *prior to* subsequent irradiation.” Def. resp. br. at 13. The parties disagree about the purpose of the ‘199 Patent’s instruction that interaction energy transients be allowed to “substantially decay” during the operation of the laser source. Defendant asserts that the claim term should be construed as teaching that the requisite decay causes the material modification. Plaintiff argues that, to the contrary, the interaction energy transient decay does not cause the material modification, but rather minimizes collateral damage to the target material. Pl. br. at 18.

The specification teaches that the requisite decay period exists to prevent subsequent pulses from interacting with previous pulses and to allow for controlled material modification. ‘199 Patent col.40 ll.13-24, col.44 ll.10-16. The specification further clarifies that collateral damage is minimized by allowing the interaction energy transients to decay prior to sending any further pulses to the target area. Id. Therefore, the Court adopts Plaintiff’s construction, which avoids importing limitations not present in the claims or the specification of the ‘199 Patent.

Finally, Defendant’s construction of these claim terms focuses on the requirement that material modification be caused by multiple laser pulses. Def. br. at 13-14. Defendant argues that Plaintiff’s argument in Plaintiff’s brief is an admission that material modification requires multiple pulses. Id. at 14 (citing Pl. br. at 6 (“Neev understood that *multiple* pulse interactions occurring through the irradiation of pulses of any duration on the target results in the accumulation over time of energy transients . . .”) (emphasis added)). However, as discussed above, the specification explicitly contemplates that a single pulse could be delivered to the target area to achieve material modification. See discussion supra part III.B.6. Therefore, Defendant’s construction imposes a limitation on the claims of the ‘199 Patent that is not proper

in this case. Accordingly, the Court adopts Plaintiff's proposed constructions of these claim terms set forth in Table 2 above.

6. "cumulative residual thermal energy left in the material by a pulse train"

The parties' dispute over this claim term centers around whether a "pulse train" requires the delivery of multiple pulses, as Defendant contends, or whether it could be satisfied by the delivery of a single pulse, as Plaintiff contends. Because, as discussed above, the specification explicitly contemplates that a single pulse could be delivered to the target area, see discussion supra part III.B.6, the Court adopts Plaintiff's construction of the term as meaning "remaining accumulated thermal energy left in the target material by a pulse train."

IV. Terms for which Defendant Seeks Construction, but Where Plaintiff Contends that No Construction Is Necessary

Plaintiff and Defendant disagree about whether nine claim terms need to be construed by this Court.

A. Terms that Defendant Argues Require Construction, but Where Plaintiffs Argue that No Construction Is Necessary:

Several of the terms listed in the table below are part of the preambles of their respective claims. For these terms, Plaintiff and Defendant dispute whether each term limits the meaning of its respective claim. As to each of these terms, Plaintiff argues that "to the extent the Court determines it is limiting, this term should be construed [using the identical language of the claim term]." (Pl. Opening Claim Construction Brief). However, Plaintiff principally argues that construction of these terms is unnecessary, and ask that the Court decline to construe them. The Federal Circuit has held that "[w]hen the parties present a fundamental dispute regarding the

scope of a claim term, it is the court's duty to resolve it.” O2 Micro, 521 F.3d at 1362.

Therefore, the Court construes the claim terms as set forth below.

Table 3

Claim term	Recited in or Required by Claims	Defendant’s Proposed Construction	Supporting Evidence Cited by Defendant
“controlled, variable rate material modification”	1, 2, 20-25, 27, 28, 30, 34, 50-54, 61, 67, 71, 77, 80-83	This term limits the scope of the claims, even when found in the preamble. This refers to a process by which material is modified or removed at a variable rate by manipulating the beam parameters while irradiating the target material.	199 Patent at 33:23-40:24, 42:59-45:33. Neev depo. at 113:16–114:3. Kinder depo. at 32:17–21.
“highly controllable, variable rate material removal”	5, 6, 7, 10-15		
“target material”	1, 2, 5, 6, 7, 10, 11, 12, 13, 14, 15, 20-25, 27, 28, 30, 34, 50-52, 53, 54, 61, 67, 71, 77, 80-83, 85, 86	The entire object targeted for modification (e.g. tooth, cornea).	Neev depo. at 114:13–115:2. Kinder depo. at 58:21–60:24.
“target region”	1, 2, 20-25, 27, 28, 30, 34, 50, 51, 52, 53, 54, 61, 67, 71, 77, 80- 83, 85, 86	The specific, fixed location in the target material that is intended for modification by the electromagnetic beam.	Neev depo. at 115:24–116:1. Kinder depo. at 58:21–60:24.
“material removal by a continuously emitting, continuous wave (CW) beam of electromagnetic radiation”	5-7, 10-15	This term limits the scope of the claims, even when found in the preamble. This refers to material removal by a beam of electromagnetic radiation that operates without any intervening period of zero power as it interacts with the material.	‘199 patent at, e.g., col. 11:8-13:61, 13:10-37, 49: 42-57:40 <i>See also</i> Serial No. 09/632,199, Resp. to Office Action, April 12, 2002, at 5-7.

“continuously emitted electromagnetic radiation”	5-7, 10-15	Continuous EM radiation without any intervening period of zero power	The '199 patent at, for example, col. 49, ll. 5-16 and 27-41.
“redistributing the beam in time and space to form at least one modified beam comprising a plurality of pulses”	5-7, 10-15	Partitioning the continuous wave beam to separate physical locations in the material for specific time periods with each period creating a “pulse effect” in the “modified beam” at that physical location, without changing the characteristics of the continuous wave beam of electromagnetic radiation.	'199 patent at, <i>e.g.</i> , col. 11:8-13:61, 13:10-37, 49:42-57:40 <i>See also</i> Serial No. 09/632,199, Resp. to Office Action, April 12, 2002, at 5-7.
“plasma”	21, 22, 25, 80	A state of matter similar to a gas in which a certain portion of the particles is ionized.	[None identified]

1. “controlled, variable rate material modification” and “highly controllable, variable rate material removal”

The Court construes the above terms using the identical language found in the claim term, respectively as, “controlled, variable rate material modification” and “highly controllable, variable rate material removal.” These terms are found in the preambles to the independent claims of the '199 Patent. Defendant argues that even though these terms are present in the preambles of the relevant claims, these terms limit the scope of the claims. Defendant’s proposed construction for these terms include the limitation that the “material is modified or removed at a variable rate by manipulating the beam parameters while irradiating the target material.”

Language in the preamble of a claim should be construed to limit a claim if the claim preamble is “necessary to give life, meaning, and vitality” to the claim. Pitney Bowes, Inc. v. Hewlett-Packard Co., 182 F.3d 1298, 1305 (Fed. Cir. 1999). In this case, Defendant’s proposed construction of the claim terms is not necessary because language from Defendant’s proposed

construction is present in element (d) of Claim 1. ‘199 Patent Reex. Cert. at col.1, ll.53-57 (“allowing interaction energy transients caused by the electromagnetic pulses to substantially decay so that material modification is effected permitting the controlled, variable rate material modification”).

“District courts are not (and should not be) required to construe every limitation present in a patent's asserted claims.” O2 Micro, 521 F.3d at 1362. Defendant’s proposed construction of these claim terms are not “necessary to give life, meaning, and vitality” to the above claim terms, which are found in the relevant claims’ preambles. Therefore, the Court declines to impose the suggested limitations on these claim terms.

2. “target material” and “target region”

Defendant argues that these terms need to be construed to specify the precise nature of the area being targeted. Def. br. at 20. Plaintiff responds that the terms do not need to be construed, as the claim term language is clear and unambiguous.

Element (b) of Claim 1 of the ‘199 Patent, an element that was added during reexamination, requires “preparing the target region of the target material by spatially or temporally varying at least one of an absorption characteristic of the material or a scattering characteristic of the material at the target region.” Defendant argues that because both of the terms “target material” and “target region” are present in the same element of the claim, they must refer to different areas of the object being targeted.

Defendant’s proposed construction of “target material” refers to “the entire object targeted for modification (e.g., tooth, cornea),” whereas “target region” is limited to “the specific, fixed location in the target material that is intended for modification by the electromagnetic beam. This distinction is confirmed by language in the patent specification that

refers to targeting a “desired location within the three-dimensional space of the *target region* while substantially sparing adjacent regions of the *target material* from any collateral damage.” ‘199 Patent at 10:67-11:7 (emphasis added). Plaintiff’s counsel during the reexamination proceeding specifically confirmed this understanding during his deposition. Def. Ex. K, Kinder Dep. Tr. 60:16-24. Therefore, to assist in clarification of the claim terms, this Court adopts Defendant’s proposed constructions of these claim terms.

3. “material removal by a continuously emitting, continuous wave (CW) beam of electromagnetic radiation” and “continuously emitted electromagnetic radiation”

Defendant argues that these terms, present in Claim 5 of the ‘199 Patent, must be construed with the requirement that the laser beam have no “intervening period of zero power” during its operation. While the first claim term at issue, “material removal by a continuously emitting, continuous wave (CW) beam of electromagnetic radiation,” appears in the preamble of Claim 5, the second claim term at issue, “continuously emitted electromagnetic radiation,” appears in element (a) of the body of the claim. Language in a preamble to a claim need not be construed unless it is “necessary to give life, meaning, and vitality” to the claim. Poly-America, L.P. v. GSE Lining Tech., Inc., 383 F.3d 1303, 1309 (Fed. Cir. 2004). Construing the claim term in the preamble of Claim 5 would be redundant, and therefore unnecessary, in this case. Accordingly, the Court need only consider construing the claim term in the actual body of Claim 5, namely the claim term “continuously emitted electromagnetic radiation”.

Defendant argues that its proposed construction should be adopted to clarify the nature of the “continuous” laser beam taught in Claim 5. Defendant cites to two portions of the specification in support of its construction that the continuous beam described in the ‘199 Patent has no “intervening period of zero power.” Def. br. at 10 (citing ‘199 Patent at col. 49, ll. 5-16

and 27-41). However, nowhere in either of these two passages does the specification include the express language that there must be an “intervening period of zero power.” Insofar as such a limitation may be present in Claim 5 and its dependent claims, the claim language need not be added to. Therefore, the Court adopts Plaintiff’s construction of the term “continuously emitted electromagnetic radiation” as “continuously emitted electromagnetic radiation.”

4. “redistributing the beam in time and space to form at least one modified beam comprising a plurality of pulses”

Defendant argues that this claim term, also present in Claim 5, must be construed to require the creation of a “pulse effect” in a modified beam, such that the beam remains a “continuous wave beam.” Def. br. at 12. In effect, Defendant’s construction states that the modified beam is pulsed “in effect” but in actuality never ceases to continuously emit electromagnetic radiation. Defendant cites to portions of the prosecution history in which Plaintiff allegedly sought to distinguish between the prior art, including the ‘894 Patent, which contains examples of pulsed laser beams. Plaintiff previously represented to the patent examiner that,

There are fundamental differences between the Neev, et al. ‘894 patent system and the invention of the present application. The beam characteristics . . . are not changed in the invention of the present application as they are in the Neev, et al. ‘894 patent. In the invention of the present application, the spatial location of the beam at the target is changed in time to manipulate the distribution of the constant beam output at a specific place on the target, so the beam itself is never affected, only its location on the target tissue is changed. The Neev, et al. ‘894 patent does not teach or even contemplate the use of a continuous wave source, let alone such a manipulation of the continuous wave beam.

Def. Ex. F at 6. Plaintiff responds that while Plaintiff may have made this statement during the prosecution history of the ‘199 Patent, finally issued claim language trumps erroneous statements made in the course of patent prosecution. Pl. resp. br. at 6 (citing

Biotec Biologische Naturverpackungen GmbH v. Biocorp. Inc., 249 F.3d 1341, 1348 (Fed. Cir. 2001)).

The Court adopts Plaintiff’s construction of this claim term, because to adopt Defendant’s proposed construction would be to impose a limitation on the claim, based on the prosecution history, that contradicts the language of the claims that were actually issued. The specification of the ‘199 Patent discloses examples of a “redistributed beam” wherein a beam-switching device⁷ takes a continuously-emitting beam and “rapidly *switch[es] out* a portion of the electromagnetic beam so that a pre-determined time during [the resultant pulse] can be precisely selected.” ‘199 Patent, col. 50 ll.16-25; see id. col. 52 ll.21-32 (emphasis added). Moreover, to adopt Defendant’s construction would be to exclude the possibility of exercising Claim 7, which depends from Claim 5 and includes the examples of the beam-switching devices described in the ‘199 Patent specification. Id. col. 78 ll.54-62. Defendant’s construction would impose limitations on Claim 5 that are contradicted by the express language of the claim and the working examples disclosed in the specification. Therefore, the Court adopts Plaintiff’s construction of the claim term as “redistributing the beam in time and space to form at least one modified beam comprising a plurality of pulses.”

5. “plasma”

The parties dispute whether the claim term “plasma” needs to be construed. Plaintiff argues that it does not, whereas Defendant argues that construction would help the jury to understand the meaning of the term. Defendant cites to the Wikipedia entry for a definition of “plasma” as “a state of matter similar to a gas in which a certain portion of the particles is ionized.” Def. br. at 28 (citing Wikipedia, [http://en.wikipedia.org/wiki/Plasma_\(physics\)](http://en.wikipedia.org/wiki/Plasma_(physics))) (last

⁷ Examples of such beam switching devices are Kerr cells and Pockels cells. See ‘199 Patent at 50:16-24 (describing the operation of the Kerr and Pockels cells).

visited Feb. 16, 2012)). Because Defendant does not cite to any further authority in support of this proposed claim construction, the Court relies on the language of the patent itself and construes the term as “plasma.”

V. MOTION TO STRIKE

Under Rule 12(f), a party may move to strike from a pleading “an insufficient defense or any redundant, immaterial, impertinent, or scandalous matter.” A court has “considerable discretion” in deciding a Rule 12(f) motion. Tonka Corp. v. Rose Art Indus., Inc., 836 F. Supp. 200, 217 (D.N.J. 1993). However, motions to strike are disfavored and usually will be denied “unless the allegations have no possible relation to the controversy and may cause prejudice to one of the parties, or if the allegations confuse the issues in the case.” River Road Dev. Corp. v. Carlson Corp. Ne., No. 89-7037, 1990 WL 69085, at *3 (E.D. Pa. May 23, 1990).

A. Defendant’s Motion to Strike

Defendant moves to strike two portions of Plaintiff’s Opening Markman Brief under Federal Rule of Civil Procedure 12(f).⁸ Defendant argues that these portions are inadmissible as irrelevant evidence under Federal Rule of Evidence (“FRE”) 402 or as hearsay under FRE 802. Plaintiff maintains that the paragraphs are relevant and that they are admissible either because they are not hearsay or because they are admissible under an exception to the hearsay rule. The Court agrees with Plaintiff that the challenged portions of Plaintiff’s brief are relevant to the matter of claim construction and are furthermore not hearsay. Accordingly, the Court denies Defendant’s motion to strike.

Sections II(A) and II(C) of Plaintiff’s Opening Markman Brief are part of the “Background” section of Plaintiff’s brief and are respectively titled, “The State of the Art at the

⁸ Specifically, Defendant requests that the Court strike Section II(A) and Section II(C) from Plaintiff’s Opening Markman Brief. Def. Reply br. at 4.

Time of Dr. Neev’s Invention” and “Dr. Neev’s Invention.” Section II(A), citing to the ‘199 Patent specification for support, contains several assertions regarding the extent of known research in the field at the time of Plaintiff’s invention. For example, Plaintiff states, “[a]t the time of the invention, research in this field was directed to enhancing material removal by increasing the power of the electromagnetic energy or by increasing the intensity of individual pulses of electromagnetic energy.” Pl. Opening Markman br. at 4. Plaintiff further states that “at the time of the invention, there was a need for a material modification regime that minimized collateral damage and maximized precision.” Id.

Section II(C) concerns Plaintiff’s state of mind at the time of his invention. For example, Plaintiff states that he “recognized that ultrashort pulse laser systems provided improved precision in material and biological tissue modification.” Id. at 5. The section further states that Plaintiff “sought to develop a method for material modification that allows the use of not only ultrashort pulse systems, but also systems that have pulse durations of up to several milliseconds long, while still maintaining the improved precision afforded by the ultrashort pulse laser system.” Id. at 5-6.

Defendant argues that these and other statements in Section II(A) and II(C) are irrelevant to the issue of claim construction and should be stricken. Defendant alternatively argues that if the Court finds that the challenged passages are relevant to the resolution of the claim construction hearing, the Court nonetheless should strike the passages as hearsay under FRE 802.

At the outset, the Court finds that the challenged statements pass the simple threshold test for relevant evidence under FRE 401. Rule 401 states that “[e]vidence is relevant if: (a) it has any tendency to make a fact more or less probable than it would be without the evidence; and (b) the fact is of consequence in determining the action.” (Emphasis added). The Federal Circuit

has held that when construing patent claims, a “court starts the decisionmaking process by reviewing the same resources as would [the person of ordinary skill in the art], viz. the patent specification and the prosecution history.” Phillips v. AWH Corp., 415 F.3d 1303, 1312-1313 (Fed. Cir. 2005). The state of the art at the time of the invention is relevant to claim construction. V-Formation, Inc. v. Benetton Group SpA, 401 F.3d 1307, 1310 (Fed. Cir. 2005). Thus, the challenged portions of Plaintiff’s brief, which relate to Plaintiff’s skill in the art and the state of the art at the time of Plaintiff’s invention, are clearly relevant.

Defendant next argues that the statements constitute impermissible hearsay under FRE 802 because the statements concern the novelty of Plaintiff’s invention, and because Plaintiff attempts to use the statements to prove the truth of the matter asserted (novelty). Plaintiff counters that the statements made in Section II(A) were not made to prove the truth of the matter asserted, but rather to show their effect on a person of ordinary skill in the art. The Court agrees with Plaintiff. Statements in a reference offered for their effect on one of ordinary skill in the art are not hearsay. Abbott Labs v. Diamedix Corp., 969 F. Supp. 1064, 1066 n.1 (N.D. Ill. 1997). The Court finds that Plaintiff’s discussion of the state of the art at the time of Plaintiff’s invention relates to the effect that ongoing research would have had on a person of ordinary skill in the art. Therefore, these statements are not hearsay.

Furthermore, to the extent that the statements in the challenged sections do not relate to Plaintiff’s state of mind, the statements are admissible as legally-operative facts. Statements in a patent have legal consequence, and therefore comprise legally operative facts which are not hearsay. United States v. Tyler, 281 F.3d 84, 98 (3d Cir. 2002) (“The hearsay rule excludes verbal acts, statements which themselves affect the legal rights of the parties or are circumstances bearing on conduct affecting their rights.”). Accordingly, any references to

statements in the specification that rely on the legal significance of the issued patent are admissible.

As noted above, motions to strike are disfavored and usually will be denied “unless the allegations have no possible relation to the controversy and may cause prejudice to one of the parties, or if the allegations confuse the issues in the case.” River Road Dev. Corp., 1990 WL 69085, at *3. The Court finds that the statements in the challenged sections are both relevant to the Court’s claim construction and are not being used for the truth of the matter asserted. Therefore, the Court denies Defendant’s motion to strike.

VI. CONCLUSION

For the above reasons, the Court adopts Defendant’s construction of “target region” and “target material.” As specified above, the Court adopts Plaintiff’s constructions of all other disputed claim terms. For claim terms as to which the parties do not dispute the proper construction, the Court adopts the parties’ agreed-upon constructions. Finally, the Court DENIES Defendant’s motion to strike. An appropriate order shall issue.

Date: 3/26/12

/s/ Robert B. Kugler
ROBERT B. KUGLER
United States District Judge