Exhibit 6

STC.UNM v. Intel

Invalidity Claim Chart Comparing '998 Patent to AAPA, Brueck '835, Waldo '094, Ziger, Gwozdz, and Elliott

The following asserted claims of STC.UNM's U.S. Pat. No. 6,042,998 ("'998 patent") are invalidated pursuant to 35 U.S.C. § 102 and/or § 103, alone or in combination with other references, by any of Applicant Admitted Prior Art (AAPA), U.S. Patent No. 5,415,835 to Brueck et al. ("Brueck '835"), U.S. Patent No. 4,891,094 to Waldo III ("Waldo '094"), David H. Ziger, et al., *Generalized Approach Toward Modeling Resist Performance*, ALCHE JOURNAL, Vol. 37, No. 12, Dec. 1991, at 1863-74 ("Ziger"), Peter S. Gwozdz, *Positive Versus Negative: A Photoresist Analysis*, SEMICONDUCTOR LITHOGRAPHY VI, SPIE Vol. 275, 1981 ("Gwozdz"), and/or David J. Elliott, INTEGRATED CIRCUIT FABRICATION TECHNOLOGY, 2d ed., 1989, at 85-106 and 326 ("Elliott"). These preliminary invalidity contentions are based on information currently known to Intel, and, as a result, apply interpretations apparently or potentially adopted by STC.UNM. Intel reserves the right to amend its preliminary invalidity contentions in light of developments in the case such as production of discovery, identification of additional prior art, and issuance of an order following any Claim Construction Hearing, as stated in the Scheduling Order (Dkt. 47, dated March 2, 2011).

Asserted Claims of '998 Patent	AAPA, Brueck '835, Waldo '094, Ziger, Gwozdz, and Elliott
6. A method for obtaining a pattern wherein the Fourier transform of said pattern contains high spatial frequencies by combining nonlinear functions of intensity of at least two exposures combined with at least one nonlinear processing step intermediate between the two exposures to form three dimensional patterns comprising the steps of:	The phrase "the Fourier transform of said pattern contains high spatial frequencies" is an inherent result of the nonlinear processing step. In addition, AAPA, Brueck '835, Waldo '094, Ziger, Gwozdz, and Elliott each discloses a nonlinear processing step as explained below.
coating a substrate with a first mask material and a first photoresist layer; exposing said first photoresist layer with a first exposure developing said photoresist to form a first pattern in said first photoresist layer, said first pattern containing spatial frequencies greater than those in a two dimensional optical intensity image imposed onto said photoresist layer in said first exposure as a result of a nonlinear response of said first photoresist layer; transferring said first pattern into said first mask material, said first mask material comprising at least one of SiO.sub.2, Si.sub.3 N.sub.4, a metal, a polysilicon and a polymer;	*See, e.g.*, AAPA in the '998 patent, C7:41 to C8:3: "The use of the nonlinear response of photoresist to substantially sharpen developed photoresist patterns in the z-direction, through the thickness of the resist, has long been understood [see, for example, Introduction to Microlithography, Second Edition, L. F. Thompson, C. G. Willson and M. J. Bowden, eds. (Amer. Chem. Soc. Washington D.C., 1994, pp. 174-180)]. To aid in understanding this process, many approaches exist for modeling the photoresist response. Industry-standard modeling codes, such as PROLITH™ and SAMPLE, typically take into account the many subtle effects that are often necessary to accurately model the lithography process. However, for the present purposes, a simpler model, first presented by R. Ziger and C. A. Mack [Generalized Approach toward Modeling Resist Performance, AIChE Jour. 37, 1863-1874 (1991)], typically provides a good approximation. This model describes the photoresist thickness, t(E), after the photoresist develop step substantially resulting from a given optical exposure fluence (typically normalized to a clearing fluence) E by the relationship: ##EQU1## where n is a parameter that characterizes the contrast of the resist. For typical novolac-based photoresist commonly used for I-

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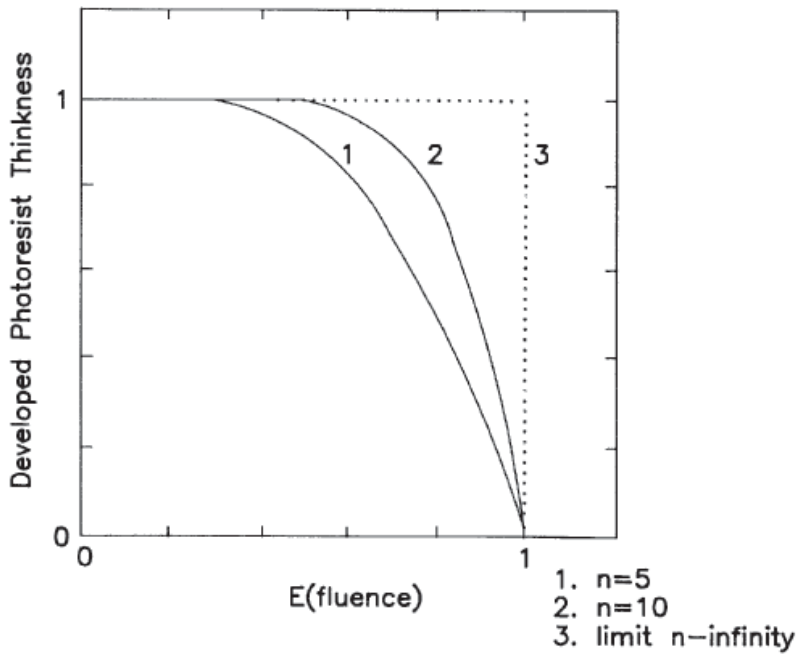
	line wavelengths, n.about.5-10. FIG. 4 shows a plot of t(E) vs. E showing the strong nonlinearity often associated with the photoresist process." *See, e.g.*, AAPA in the '998 patent, fig.4:  FIG. 4 *See, e.g.*, Brueck '835, C5:62-65: "Nonlinearities in the exposure, develop and etch processes result in a higher-order terms in a Fourier series expansion at the same period and phase as the original image."

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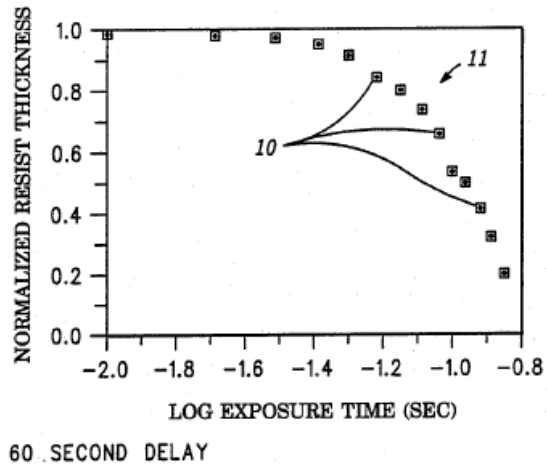
	See, e.g., Waldo '094, fig.1:  *FIG. 1* *See, e.g.*, Waldo '094, C2:47-C3:4: "Both the contrast and sensitivity of photoresist can be measured in a well known manner by exposing a given thickness of a photoresist layer to varying doses of radiation and then measuring the thickness of photoresist remaining for each radiation dose after development. This information is plotted to obtain a photoresist characteristic curve. Such a characteristic curve 11 is shown in FIG. 1 wherein each point 10 thereon corresponds to a given radiation dose and the thickness of photoresist remaining after development. The intercept of the curve 11 with the X axis gives the minimum radiation dose needed to completely clear the given thickness of photoresist after the development step. By repeating this process for the same photoresist and radiation source but using different thickness layers of photoresist, the sensitivity and contrast characteristics of the particular photoresist can be determined. In accordance with the present invention, the slope of the invention of the curve 11 as it intercepts the X or radiation dose axis is determined to find the contrast of the given layer thickness of photoresist and is plotted against the photoresist thickness that is cleared by the intercept radiation dose after development. Each point 12 of the curve 14 in FIG. 1 therefore corresponds to the slope

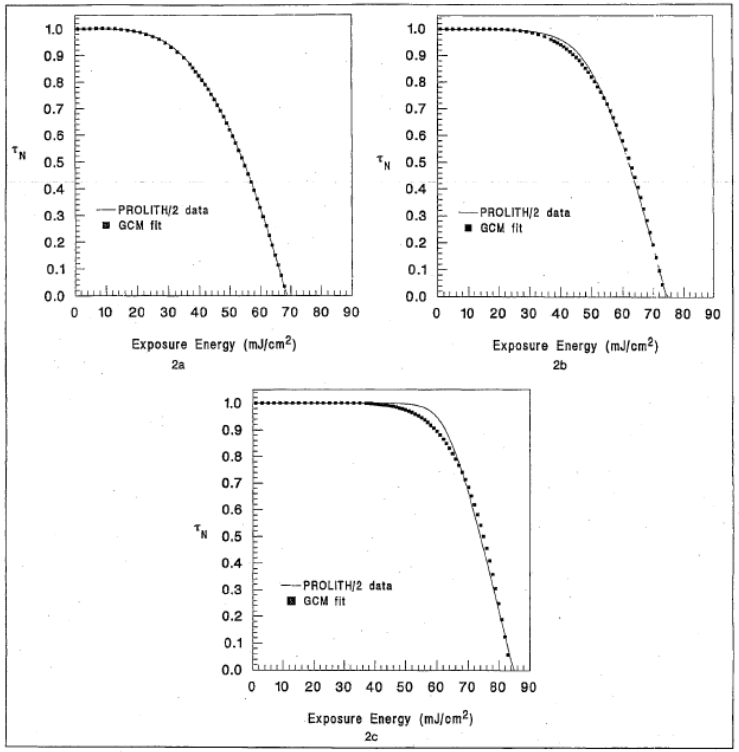
Asserted Claims of '998 Patent	AAPA, Brueck '835, Waldo '094, Ziger, Gwozdz, and Elliott
	of the intercept of curve 11 of FIG. 1 with the X axis for different thickness layers of photoresist." *See, e.g.*, Ziger, at 1868, fig.2:  **Figure 2. Characteristic curves simulated with PROLITH/2 and fitted with the GCM model for varying surface inhibition effects.** The top 0.1-μm dissolves a) the same (r_s=1), b) 0.1 (r_s=0.1), and c) 0.001 (r_s=0.001) times as fast as the bulk. *See, e.g.*, Ziger, at 1868: "Figures 2a-2c shows PROLITH/2 simulations of a positive nonabsorbing photoresist with varying surface inhibition effects." *See, e.g.*, Gwozdz, at 157, figs.1 & 2:

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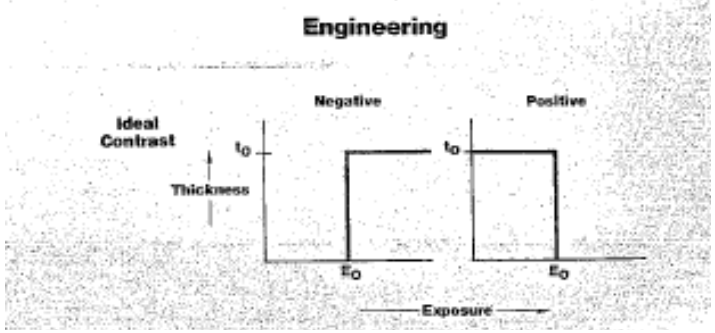
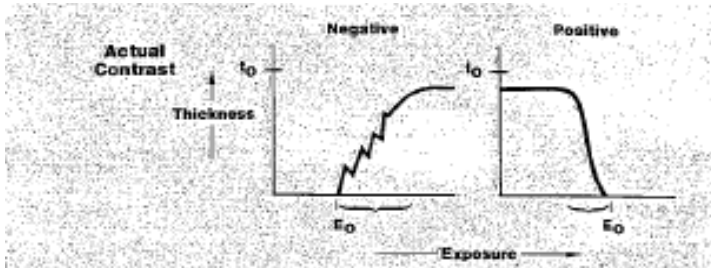
	Figure 1: Ideal Contrast Curves. Photoresist thickness after development is graphed as a function of exposure with all other parameters held constant. t_0 is the thickness before exposure. E_0 is the critical exposure.   Figure 2: Actual Contrast Curves. In practice, there is usually slight thickness loss during development. The transition from total removal to maximum thickness (indicated by brackets) is sloped. For negative, an undefined region is indicated by a jagged line. E_0 is the critical exposure where photoresist is just barely developed away. *See, e.g.*, Gwozdz, at 158, fig.4:

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	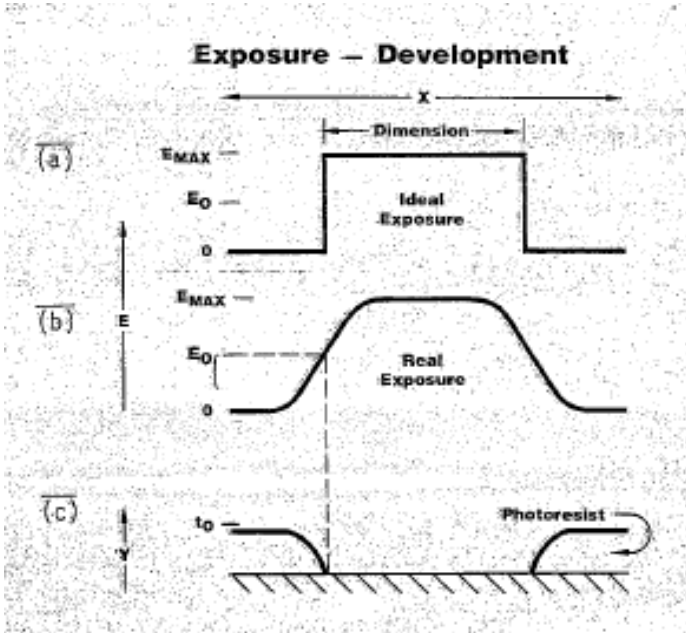 Figure 4: The Exposure Curve is used to estimate dimensions and photoresist slope. The X direction is the wafer horizontal. Exposure, E, is sketched in (a) and (b) and the wafer vertical, Y, is sketched in (c). *See, e.g.*, Elliott, at 87: "[Resist contrast] is a measure of the resist response to an aerial image that has an intensity gradient defined by the optical modulation transfer function of the optical imaging system." *See, e.g.*, Elliott, at 87, fig.3.2:

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	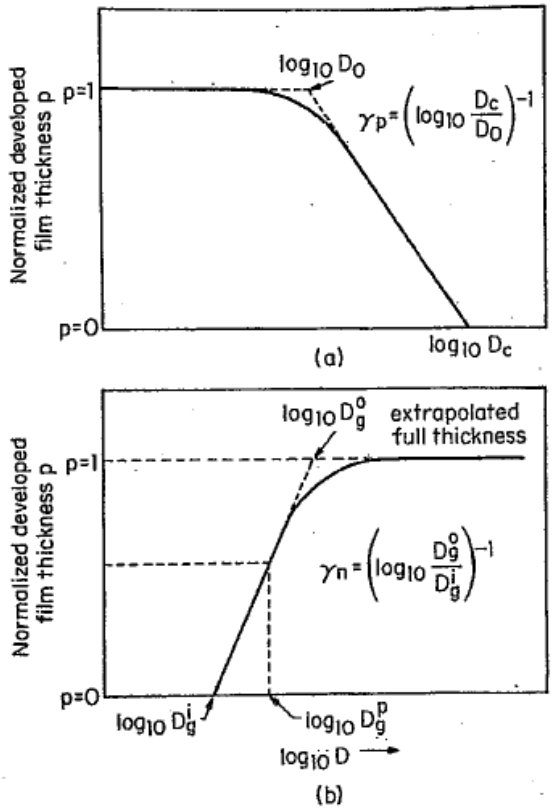 **Figure 3.2** Contrast curves for (*a*) positive and (*b*) negative photoresists.[2] *See, e.g.*, Elliott, at 327, fig.9.20:

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	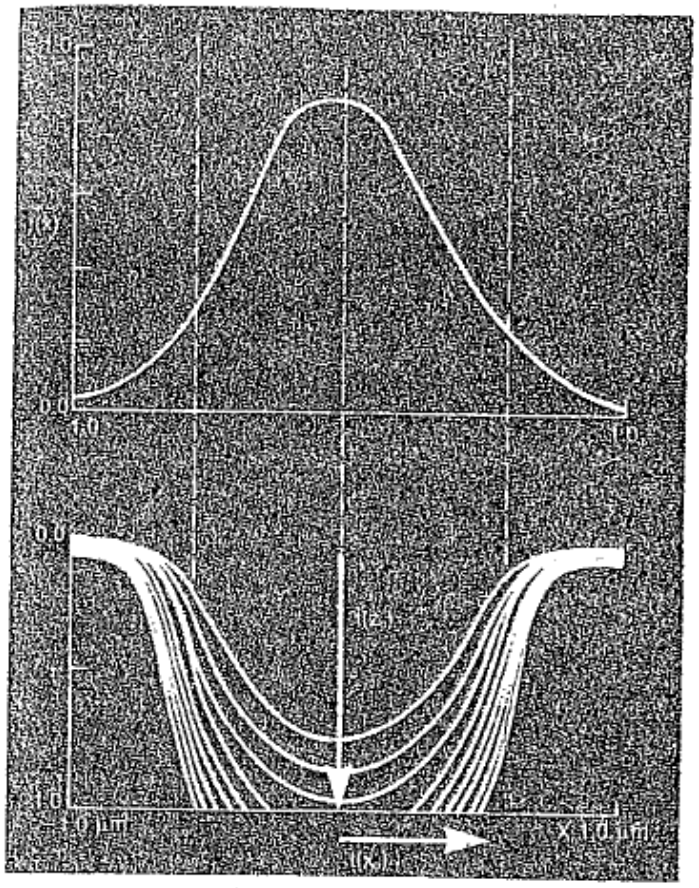 **Figure 9.20** Sample simulations of a 1-μm aerial image (top half) development contours (bottom half). (*Courtesy of M. P. C. Watts, AZ Photoresist Products.*)
coating said substrate with a second photoresist; exposing said second photoresist with a second exposure	*See, e.g.*, AAPA in the '998 patent, C7:41 to C8:3: "The use of the nonlinear response of photoresist to substantially sharpen developed photoresist patterns in the z-direction, through the thickness of the resist, has long been understood [see, for

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developing said second photoresist layer to form a second pattern in said second photoresist layer, said second pattern containing spatial frequencies greater than those in a two dimensional optical intensity image imposed onto said photoresist layer in said second exposure as a result of a nonlinear response of said second photoresist layer; transferring said first pattern and said second pattern into said substrate using a combined mask including parts of said first mask layer and said second photoresist; removing said first mask material and said second photoresist.	example, Introduction to Microlithography, Second Edition, L. F. Thompson, C. G. Willson and M. J. Bowden, eds. (Amer. Chem. Soc. Washington D.C., 1994, pp. 174-180)]. To aid in understanding this process, many approaches exist for modeling the photoresist response. Industry-standard modeling codes, such as PROLITH™ and SAMPLE, typically take into account the many subtle effects that are often necessary to accurately model the lithography process. However, for the present purposes, a simpler model, first presented by R. Ziger and C. A. Mack [Generalized Approach toward Modeling Resist Performance, AIChE Jour. 37, 1863-1874 (1991)], typically provides a good approximation. This model describes the photoresist thickness, t(E), after the photoresist develop step substantially resulting from a given optical exposure fluence (typically normalized to a clearing fluence) E by the relationship: ##EQU1## where n is a parameter that characterizes the contrast of the resist. For typical novolac-based photoresist commonly used for I-line wavelengths, n.about.5-10. FIG. 4 shows a plot of t(E) vs. E showing the strong nonlinearity often associated with the photoresist process." *See, e.g.*, AAPA in the '998 patent, fig.4:

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	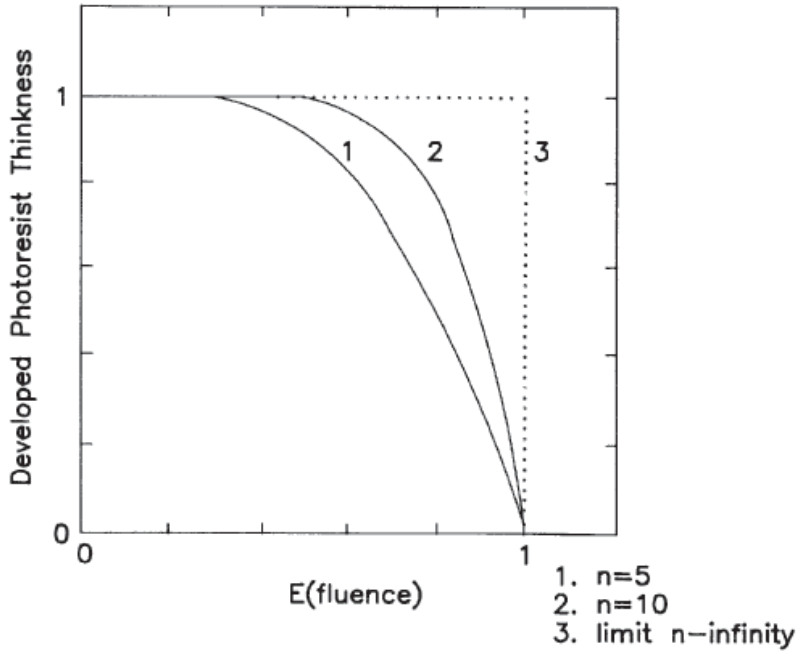 FIG. 4 *See, e.g.*, Brueck '835, C5:62-65: "Nonlinearities in the exposure, develop and etch processes result in a higher-order terms in a Fourier series expansion at the same period and phase as the original image." *See, e.g.*, Waldo '094, fig.1:

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	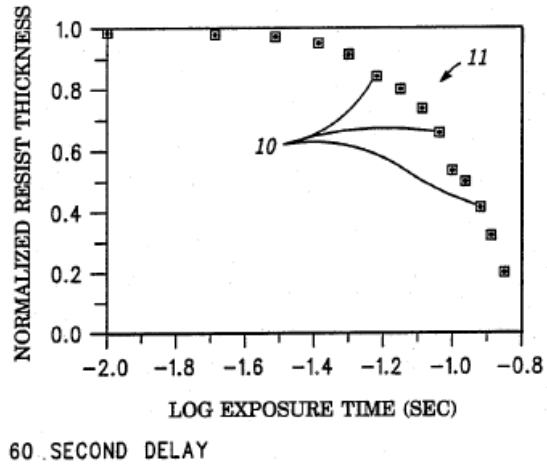 *FIG. 1* *See, e.g.*, Waldo '094, C2:47-C3:4: "Both the contrast and sensitivity of photoresist can be measured in a well known manner by exposing a given thickness of a photoresist layer to varying doses of radiation and then measuring the thickness of photoresist remaining for each radiation dose after development. This information is plotted to obtain a photoresist characteristic curve. Such a characteristic curve 11 is shown in FIG. 1 wherein each point 10 thereon corresponds to a given radiation dose and the thickness of photoresist remaining after development. The intercept of the curve 11 with the X axis gives the minimum radiation dose needed to completely clear the given thickness of photoresist after the development step. By repeating this process for the same photoresist and radiation source but using different thickness layers of photoresist, the sensitivity and contrast characteristics of the particular photoresist can be determined. In accordance with the present invention, the slope of the invention of the curve 11 as it intercepts the X or radiation dose axis is determined to find the contrast of the given layer thickness of photoresist and is plotted against the photoresist thickness that is cleared by the intercept radiation dose after development. Each point 12 of the curve 14 in FIG. 1 therefore corresponds to the slope of the intercept of curve 11 of FIG. 1 with the X axis for different thickness layers of photoresist." *See, e.g.*, Ziger, at 1868, fig.2:

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	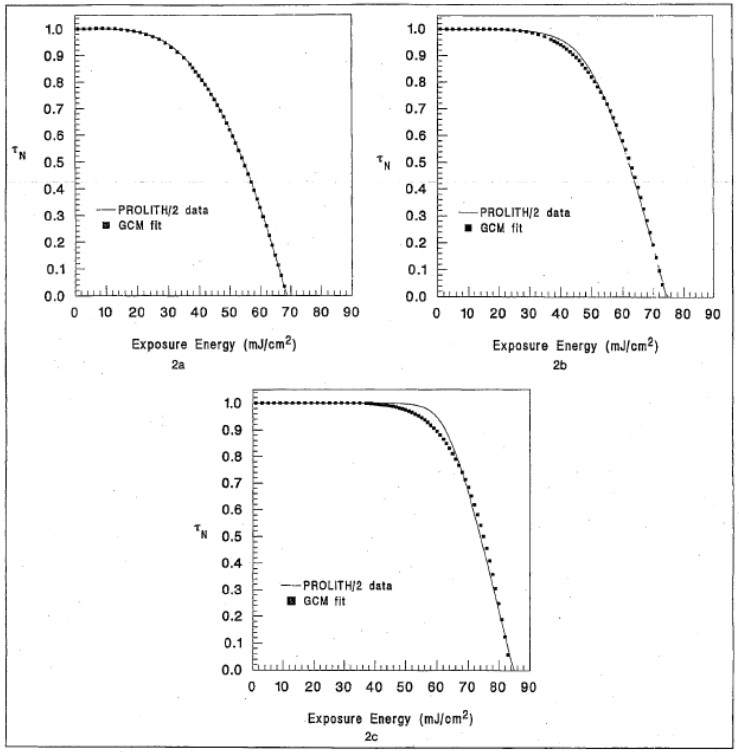 **Figure 2. Characteristic curves simulated with PROLITH/2 and fitted with the GCM model for varying surface inhibition effects.** The top 0.1-μm dissolves a) the same (r_s=1), b) 0.1 (r_s=0.1), and c) 0.001 (r_s=0.001) times as fast as the bulk. *See, e.g.*, Ziger, at 1868: "Figures 2a-2c shows PROLITH/2 simulations of a positive nonabsorbing photoresist with varying surface inhibition effects." *See, e.g.*, Gwozdz, figs.1 & 2:

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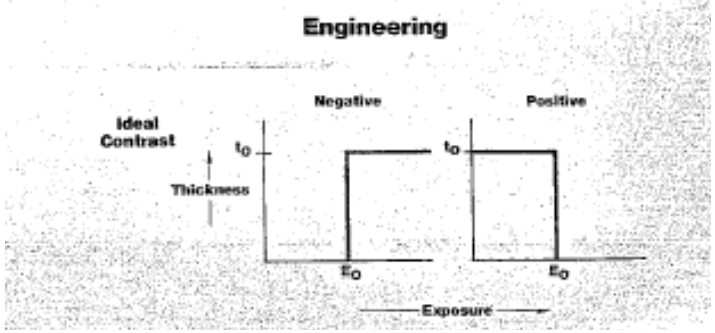
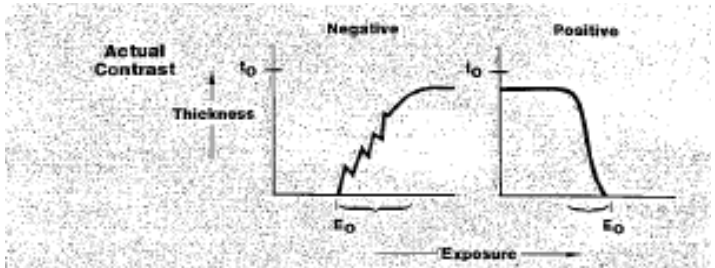
	Figure 1: Ideal Contrast Curves. Photoresist thickness after development is graphed as a function of exposure with all other parameters held constant. t_0 is the thickness before exposure. E_0 is the critical exposure.   Figure 2: Actual Contrast Curves. In practice, there is usually slight thickness loss during development. The transition from total removal to maximum thickness (indicated by brackets) is sloped. For negative, an undefined region is indicated by a jagged line. E_0 is the critical exposure where photoresist is just barely developed away. *See, e.g.*, Gwozdz, at 158; fig.4:

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	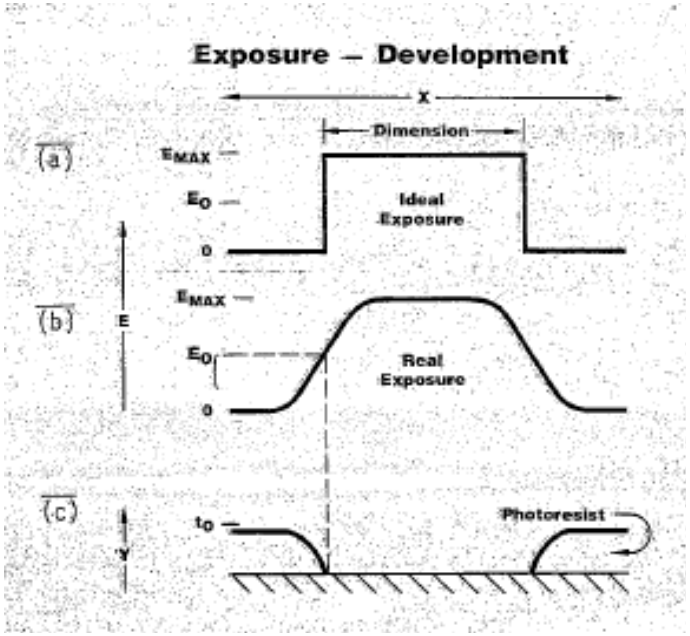 Figure 4: The Exposure Curve is used to estimate dimensions and photoresist slope. The X direction is the wafer horizontal. Exposure, E, is sketched in (a) and (b) and the wafer vertical, Y, is sketched in (c). *See, e.g.*, Elliott, at 87: "[Resist contrast] is a measure of the resist response to an aerial image that has an intensity gradient defined by the optical modulation transfer function of the optical imaging system." *See, e.g.*, Elliott, at 87, fig.3.2:

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	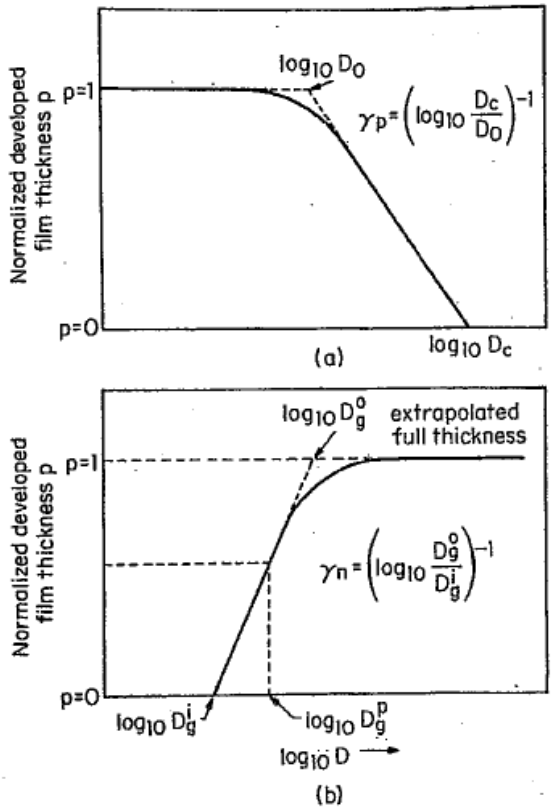 **Figure 3.2** Contrast curves for (*a*) positive and (*b*) negative photoresists.[2] *See, e.g.*, Elliott, at 327, fig.9.20:

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	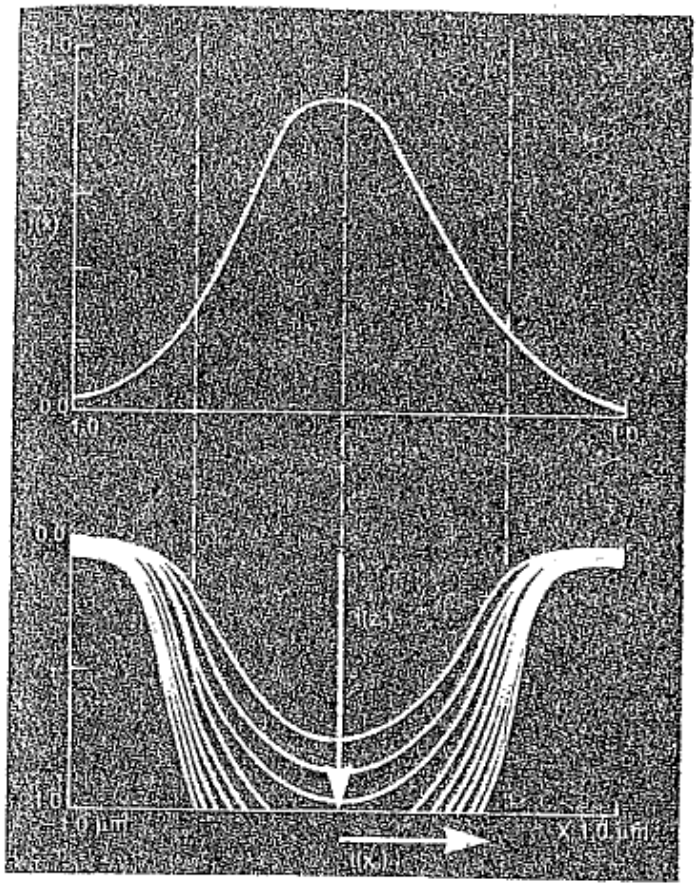 **Figure 9.20** Sample simulations of a 1-μm aerial image (top half) development contours (bottom half). (*Courtesy of M. P. C. Watts, AZ Photoresist Products.*)

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