# Alexander D. Glew, Ph.D., P.E.

## Employment History

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| From: 1997<br>To: Present<br>Position: | | **Glew Engineering Consulting, Inc.**<br>Mountain View, California<br>President & CEO<br>Clients include semiconductor equipment, plasma generation, vacuum systems, fluid delivery systems, flow and pressure component suppliers, laser manufacturers, consumer electronics, industrial electronics, vehicles, telecommunications, etc. Consulting work includes thin film characterization, process development, project turn-around/rescue, gas flow and vacuum metrology, design of experiments, corrosive gas applications, finite element analysis, and related market analysis. |
| From: Aug 1987<br>To: Jan 1997<br>Titles<br>Project Mgr.<br>Jan 1996 to<br>Jan 1997 | | **Applied Materials, Inc.**<br>Santa Clara, California<br>Engineering Manager, Core-Technologist<br>• I sat on the corporate engineering/technology (ET) council, one of 15 council members. Responsible for corporate direction in high purity processing, gas, and chemical delivery technology for all divisions, including CVD, EPI, PVD, RTP, ETCH, PRS, Thermal Processing, CMP, Flat Panel Display, and others. Also, qualified gas and vacuum component selections. In addition, I consulted with all divisions on gas and vacuum systems, liquid source delivery systems, components, chemical and process gas, and supplier selections.<br>• I received a patent for improved tungsten (W) CVD deposition with carbon doping.<br>• I successfully proposed and executed a project that SEMATECH S100 funded. The goal was to develop industry methods to determine the effects of trace chemicals on semiconductor processing and equipment reliability. This work resulted in two SEMATECH Technology Transfers listed below. First, we introduced ppb levels of impurities into both a Tungsten CVD deposition process and an aluminum etching process. Subsequently, we examined the effect on particle generation, deposition rate, uniformity, selectivity, and incorporation into the film. This work resulted in a 30% increase |
| | CVD Supplier Quality Engineering Manager | |



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IPR2024-00016

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| Core Technologist | in deposition rate. Similarly, we introduced ppb-ppm levels of impurities into HBr gas systems and conducted accelerated lifetime tests at three sites across the country. Also, we measured gas composition in situ of Tungsten CVD and Al Etch process by quadrupole mass spectrometry. |
| CVD Engineering Manager | • I managed gas, vacuum, and chemical components, evaluation, testing, and supplier quality management. Also, I led an engineering group that tested and recommended gas, vacuum, and chemical component for the CVD division and developed process controls at suppliers. In addition, I supervised the laboratory and trained individuals to create specialized testing capabilities to characterize gas delivery and vacuum components. Also, I supported Etch, PVD, and other divisions with shared suppliers, including vacuum pumps, vacuum transducers, flow controllers, valves, etc. |
| Systems Engineer | • I managed a group of engineers and support personnel who developed gas panels and liquid source chemical delivery systems for dielectric deposition. Delivered TEOS, TMP, TMB, and many other organometallic precursors for USG, PSG, and BPSG dielectric deposition. Developed organometallic CVD systems extensively. We designed multiple liquid source delivery systems for organometallic chemical precursors, i.e. bubblers, boilers, and injectors.<br>• I managed the CVD division design support group: CAD designers, drafters, and CAD systems for division. I brought in first 3D CAD systems and the first FEA program.<br>• I established and managed the customer engineering special group for the CVD division, which engineered all equipment modifications to meet customer specifications. These modifications included changes across the entire system, including process chambers, vacuum systems, gas delivery, power distribution, safety, and robotics.<br>• I worked on the development and release of a landmark product, the Precision 5000 CVD, one of which is now in the Smithsonian Institute. This was the first cluster tool for semiconductor manufacturing.<br>• I developed dielectric layers of silicon dioxide (glass or USG), boron phosphorous silicon glass (BPSG), phosphorous silicon glass (PSG), nitride, oxy-nitride, and others.<br>• I was responsible for flow and vacuum equipment suppliers for the company including MFC, valves, mechanical vacuum pumps, cryo-pumps, dry pumps, and others. Supported multiple divisions on these matters. |

**Doctoral Dissertation:**

From: 1996 Stanford University
To: 2002 Stanford, California
Ph.D.
Completed a dissertation in the department of Materials Science & Engineering leading to the Ph.D. degree.
Research includes:

- Plasma Deposition of Diamond-Like Carbon and Fluorinated Amorphous Carbon and the Resultant Properties and Structure.
- Characterized stress, strain and hardness of films. Related the stress energy state to the diamond like nature of the thin films.
- Investigation of deposition mechanism fluorinated amorphous carbon (FLAC) and diamond-like carbon (DLC), low k dielectric materials.
- Modeled and conducted experiments on mechanism of ion energy, momentum and flux dependence for FLAC and DLC film synthesis in radio-frequency plasma discharges, including competing mechanisms of sub-plantation, ion-peening, sputtering, and etching.
- Constructed and instrumented a multi-purpose processing chamber for PE-CVD, etch, and sputtering with measurement capability.
- Fabricated MIS capacitors to investigate the dielectric properties of fluorinated amorphous carbon (FLAC). Performed all wafer processing to construct MIS capacitors, including lithography, etch, CVD and PVD.
- Conducted thin film analysis including UV absorption spectroscopy, spectral ellipsometry, multi-incident angle ellipsometry, Fourier transform infrared spectroscopy, profilometry, nano-indentation, RBS, HFS, nano-indentation, and gravimetric measurements.
- Modeled dielectric properties and dispersion relationship of fluorinated amorphous carbon (FLAC), and compared spectral ellipsometric measurements to results of electrical CV tests and thickness measurements by profilometry using MIS structures.

**Consulting History**

From: 2022 JRCO
To Ongoing Professional Engineering review and FEA analysis of an electric vehicle used as float at Disneyland,"It's a Small World."

From: 2021 Global Foundries
To: 2021 Review patent portfolio.

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| From: | 2020 | Sydney Metro, Australia |
| To | 2022 | Analysis of the all of the equipment, its replacement, startup, and the cost of moving a semiconductor FAB in order to put a metro rail line through the area. Client (Syndey Metro) received a favorable ruling from the Valuer General. |
| From: | 2019 | TDA Research Institute |
| To: | 2020 | Analysis of a high-temperature battlefield hydrogen reactor. |
| From: | 2019 | LED Manufacturer |
| To: | 2019 | FEA thermal analysis of new LED designs. |
| From: | 2019 | Elwood Mill Products |
| To: | 2019 | Professional Engineering review of capital equipment. Finite element analysis. |
| From: | Sept. 2017 | UNICO |
| To: | Jan 2018 | Finite element analysis of new product concepts. |
| From: | July 2017 | Elwood National Forge |
| To: | Dec 2017 | Professional Engineering review of capital equipment. Finite element analysis. |
| From: | April 2017 | Jon Richards Co. (for Disneyland) |
| To: | May 2017 | Professional Engineering review of electric vehicle used as a float at Disneyland, the Marvel Avenger's Mobile™. |
| From: | 2017 | Licensed Mechanical Engineering |
| To: | Ongoing | Professional Engineering letters and calculations for submission to building and environmental health departments. Miscellaneous clients. |
| From: | 2016 | Carbontech |
| To: | 2018 | Obtain UL listing for thin film carbon heaters. |
| From | 2018 | Solas |
| To | 2018 | Reverse engineering of OLED displays and technology. |
| From: | 2016 | Tashjian & Padian |
| To: | 2018 | Reverse engineering of OLED displays and technology. |

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| From: | 2016 | VWR |
| To: | 2017 | Review of new semiconductor technologies for etching and particle reduction in semiconductor processing chambers |
| From: | 2016 | TDA Research |
| To: | 2017 | Finite element analysis of effluent treatment system for power plant carbon reduction treatments. |
| From: | 2016 | Champion Telecom |
| To: | 2016 | Engineering support, Finite element analysis, and design of "Cell Towers on Wheels" (COWs). Multiple projects. Analysis of trucks used to support emergency telecommunications. |
| From: | 2015 | Phiston Engineering |
| To: | 2016 | Review the ability of equipment to destroy flash memory. Generate reports for clients to submit to NSA and others. |
| From: | 2015 | United States Air Force |
| To: | 2015 | Concluded |
| | Duties | Advanced semiconductor process equipment engineering for Air Force Laboratory. CVD equipment design, control circuitry, and related hardwar. |
| From: | 2015 | VADA |
| To: | 2016 | |
| | Duties | Fluid analysis of venting device to avoid building catastrophy.. |
| From: | 2013 | Watlow |
| To: | 2014 | |
| | Duties | Development of wafer chuck heating device for silicon processing. This has led to multiple patents. |
| From: | 2012 | Solar Cell Manufacturing Factory Explosion at SolarWorld, OR. |
| To: | 2013 | |
| | Duties | Analysis, measurement, and report on explosion of CVD equipment in solar manufacturing factory: PECVD Silicon Nitride Process. Work performed for insurance company. |

**Testimony**

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| Client | BOE Technology Group Co |
| Case | In the Matter of Certain Organic Light-Emitting Diode Display Modules and Components Thereof(Inv. No. 337-TA-1378)<br><br>Samsung Display Corp v BOE Technology Group Co et al. |
| Project | ITC matter |
| Dates | March 2024 ongoing |
| Status | Ongoing |

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| Client | Kawasaki Jukogyo Kabushiki Kaisha (Crowell Moromg LLP) vs. Rorze Corporation and Rorze Automation, Inc., |
| Case | UNITED STATES DISTRICT COURT<br>NORTHERN DISTRICT OF CALIFORNIA<br>SAN JOSE DIVISION<br>Case No. 5:22-cv-04947-EJD (SVK) |
| Project | Semiconductor equipment patents |
| Dates | 2023 - ongoing |
| Status | Ongoing |

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|---|---|
| Client | Daedulus Prime (Mintz Levin) vs. Samsung and TSMC |
| Case | International Trade Commission 337-TA-1336 |
| Project | Semiconductor patents |
| Dates | 2022 |
| Status | Settled in September 2023 |

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|---|---|
| Client | IFT (Mintz Levin) vs. Samsung and TSMC |
| Case | IFT v. Micron |
| Project | Semiconductor patents |
| Dates | 2022 |
| Status | Settled |

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|---|---|
| Client | Silanna vs. Sydney Metro West (Ashurst) |
| Case | Class 3 Proceedings in the Land & Environment Court Case: Silanna Semiconductor Pty Ltd v Sydney Metro (2022/00004763). |
| Project | Eminent domain of a semiconductor facility |
| Dates | 2021 – 2022. |
| Status | Settled in mediation. |

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| Client | Demaray (Irell and Manella) vs. Samsung Corp. |
| Case | Western District of Texas Waco Division, Case No. 6:20-CV-00636-ADA |
| Project | Semiconductor PVD processing, Pulsed DC and RF plasma power filtering. |
| Dates | 2020 – 2024 |
| Status | The trial was held in February 2024. |

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|---|---|
| Client | Demaray (Irell and Manella) vs. Intel Corporation and Samsung Corp (6:20-cv-00636-ADA) |
| Case | Western District of Texas Waco Division, Case No. 6:20-CV-00636-ADA. |
| Project | Semiconductor PVD processing, Pulsed DC and RF plasma power filtering. |
| Dates | 2020 – 2023 |
| Status | Settled with Intel in September 2023. Testified on Samsung matter in Feb. 2024. |

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|---|---|
| Client | Demaray (Irell and Manella) vs. Intel Corporation and Samsung Corp. |
| Case | International Trade Commission<br>IPR2021-00103, IPR2021-00104 |
| Project | Semiconductor PVD processing, Pulsed DC and RF plasma power filtering. |
| Dates | 2020 – 2021 |

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| Client | Tokyo Ohka Kogyo Co., Ltd. ( Knobbe) v. Fujifilm Electronic Materials U.S.A., Inc. |
| Case | Case No. PGR2022-00010 |
| Project | Semiconductor patent dispute. |
| Dates | 2021 – 2022 |
| Status | Submitted report. IPR granted. Settled. |

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| | Hanwa vs REC (Gilbert Tobin) et al . |
| Case | Federal Court of Australia, NSD 458 of 2019. |
| Project | Solar panel manufacturing patent dispute. |
| Dates | 2021 – 2022 |
| Status | Testified in Federal Court in Sydney, NSW, Australia. |

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|---|---|
| Client | Ocean Semiconductor LLC vs Western Digital Corp (Shearman & Sterling LLP) |
| Case | IPR2021-00929 |
| Project | Semiconductor processing/metrology patent dispute. |

Dates 2020 – 2020
Status Concluded.

Status Settled

Client Continental Circuits (Caldell, Cassidy, and Curry) vs. Intel Corporation; Ibiden
Case No. CV16-2026 PHX DGC
Project Electronics substrate (PCB) technology.
Dates 2018 – 2020
Status Submitted reports and testified at deposition. Settled.

Client RENEE PLUNKETT, AN INDIVIDUAL AND HEIR OF ESTATE OF SCOTT PLUNKETT, GLOREE PLUNKETT, A MINOR BY AND THROUGH HER GUARDIAN AD LITEM, TERRY ALLEN ROBERTSON (Michael Hirman Law) vs. LEATT CORP., A FOREIGN CORPORATION; TIFFANY NELLIS; AND DOES 2-100

Case: 19-cv-0629-H-AGS
Project FEA analysis of safety device
Status Submitted expert report. Settled.

Client Moldanado et al v. Apple Inc. (Morrison and Forrester)
Case Case No. 3:16-cv-04067-WHO
Project iPhone and iPad Class Action Law Suit
Dates 2019-
Status Submitted declaration and testified at deposition.
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Client Hanwa v REC et al (Finnegan).
Case ITC 337-TA-1151
Project Solar Panel Technology
Dates 2019-2020.
Status Submitted declaration and testified at deposition.

Client Micron vs. Northstar/WiLAN (Eckert Seamons)
Case IPR2018-01000, U.S. Patent No. 6,465,743
Project Semiconductor packaging and ball grid arrays
Dates 2019
Status Submitted declaration and testified at deposition. Settled.

Client ASM (KMOB) vs. Kokusai Electric Corporation

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| Case | IPRs multiple: IPR2018-01584, IPR2018-01523, IPR2018-01479, IPR2018-01151, IPR2018-01357. |
| Project | Semiconductor processing equipment. |
| Dates | 2018 -2019 |
| Status | Submitted declaration and testified at depositions. Settled. |

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| Client | IP Bridge, (Ropes & Gray) |
| Case | IP Bridge vs Qualcom |
| Project | Patent review. |
| Dates | 2018 -2019 |
| Status | Settled |

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| Client | IP Bridge, (Wolf, Greenfield & Sacks) |
| Case | IP Bridge vs TSMC |
| Project | Patent review. |
| Dates | 2018 |
| Status | Settled |

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| Client | Veeco (Ropes and Gray) |
| Case | Veeco (Ropes and Gray) vs. SGL Carbon Group , QVl 7-2 217 |
| Project | Semiconductor Processing Equipment for process chamber chucks. |
| Dates | 2017 |
| Status | Completed. Preliminary injunction granted for client and settlement reached. |

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| Client | IP Bridge (Ropes and Gray) |
| Case | BROADCOM LIMITED, BROADCOM CORPORATION, AVAGO TECHNOLOGIES, LTD., AVAGO TECHNOLOGIES U.S., INC., and LSI CORPORATION, Case No. 2:16-cv-134, Eastern District of Texas, and IPR2016-1376, 1377 and 1379. |
| Project | Interconnect and back end of line patents. |
| Dates | Spring 2015 – Spring 2017 |
| Status | Submitted expert reports and testified at deposition. Settled. |

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| Client | Elm 3DS Innovations (Mintz, Levin, Cohn, Ferris, Glovsky and Popeo PC) |
| Case | Elm vs. Samsung Electronics, Hynix and Micron<br>Inter Partes Review (IPR) at the USPTO: IPR2016-00386, IPR2016-00387, IPR2016-00388, IPR2016-00389, IPR2016-00390, IPR2016-00391, IPR2016-00392, IPR2016-00393, IPR2016-00394, IPR2016-00395, IPR2016-00687, IPR2016-00691, IPR2016-00708, IPR2016-00770, and IPR2016-00786. |

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| Project | I performed a patent infringement analysis involving thinned and stacked wafers, low-stress dielectric materials, and other topics of IC memory. |
| Dates | 2016 – 2017 |
| Status | Submitted declarations in IPR and gave testimony at deposition. |

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| Client | Semcon, (Russ, August & Kabat) |
| Case | Semcon v. Micron Inc.<br>CASE NO. 12-532-RGA<br>UNITED STATES DISTRICT COURT<br>FOR THE DISTRICT OF DELAWARE |
| Project | Advanced process control and metrology in semiconductor processing patent case regard CMP. |
| Dates | 2013 |
| Status | Submitted expert reports and testified at deposition. |

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| Client | Department of Justice, Anti-Trust Division, USA |
| Case | Applied Materials Tokyo Electron Merger |
| Project | Provide industry expert analysis to the Anti-Trust Division of the DOJ in the merger for competitive equipment across all of the product lines, as well as other analyses. |
| Dates | 2013 – 2014 |
| Status | Parties abandoned the merger, action completed. |

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| Client | Caterpillar Inc., (Baker & Hostetler) |
| Case | Miller UK Limited v. Caterpillar Inc.<br>CASE NO. 10-cv-3770, UNITED STATES DISTRICT COURT<br>FOR THE NORTHERN DISTRICT OF ILLINOIS<br>EASTERN DIVISION |
| Project | Trade secret case related to CAD drawings. |
| Dates | 2013 |
| Status | Submitted expert reports and testified at deposition and at trial. Completed. |

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| Client | Carr & Farrell (LAM Research) |
| Case | LAM RESEARCH CORPORATION v. XYCARB CERAMICS<br>CASE NO. 3:03-cv-1335 CRB<br>UNITED STATES DISTRICT COURT<br>NORTHERN DISTRICT OF CALIFORNIA<br>SAN FRANCISCO DIVISION |
| Project | Review product for patent infringement related to process chamber components.. |
| Dates | 2013 |
| Status | Submitted reports and was deposed.Settled |

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| Client | Schwegman, Lundberg & Woessner, P.A. (Amkor) |
| Case | Tessera v. Amkor. Petition for *inter partes* review of U.S. patent at USPTO |
| Project | Semiconductor manufacturing technology relating to packaging. |
| Dates | 2013 – present |
| Status | Submitted declarations in IPR and gave testimony at deposition. |

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| Client | Fish & Richardson (3M) |
| Case | TransWeb v. 3M, District Court of NJ, 2:10-cv-04413 (FSH/PS) |
| Project | Litigation for plasma fluorinated electrets. Trade secret litigation for plasma fluorination of electrets and filter media, woven polymer fabric forming HEPA filters. |
| Dates | 2011 |
| Status | Expert report, deposed, trial. |

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| Client | Allegaert Berger & Vogel LLP (Taiwan Glass) |
| Case | CVD Equipment v. Taiwan Glass, 10 Civ. 0573 (RH-I) (RLE), Eastern District of NY |
| Project | Litigation for breach of contract in CVD conveyor coating equipment used in the manufacture of coated low emissivity (low E) window glass, coated display glass (ITO), and coated solar glass. |
| Dates | 2010 |
| Status | Expert report, deposed, judgement. |

Description Analyzed viability of unfinished manufacturing equipment and processes.

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| Client | Knobbe, Martens, Olson & Bear (ATS) |
| Case | ATS v. AMI SACV07-1384 JVS (JWJx) |
| Project | Litigation for correction of inventor-ship of patents, and breach of contract, for heat exchangers used in semiconductor processing equipment. |
| Dates | 2009 |
| Status | Expert report, deposed, Trial.<br>Submitted and testified. |

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| Client | Lee and Li (American Insurance Underwriters.) |
| Case | AIU v. Applied Materials, Centrotherm, M&W and others. |
| Project | Insurance claims re destruction of Semiconductor Fab. Reviewed plans, standards, equipment, processes and related. |
| Dates | 2009 |
| Status | Report, Tried in High Court of Taiwan. Testified. |

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| Client | Robbins, Kaplan, Miller, & Ciresi (AMD) |
| Case | AMD v. Samsung |

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| Project | Patent litigation for AMD Semiconductor TiN patent relating to DRAM and FLASH memory products. |
| Dates | 2007-2010 |
| Status | Expert report, deposed, settled. |

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| Client | King & Spalding, Redwood Shores, CA (Qimonda) |
| Case | Qimonda v. LSI and others at the International Trade Commission, *Certain Semiconductor Integrated Circuits And Products Containing Same*, Inv. No. 337-TA-665 |
| Project | Semiconductor processing patent relating to crack stop patents in silicon oxide glass layers. |
| Dates | 2009 |
| Status | Expert report, deposed, trial, testified at the International Trade Commission. |

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| Client | Wilmer Hale, Palo Alto, CA ( IDT) |
| Case | LSI v. IDT at the International Trade Commission, *Certain Semiconductor Integrated Circuits Using Tungsten Metallization And Products Containing Same*, Inv. No. 337-TA-648 |
| Project | Semiconductor processing patent relating to TiN patents. |
| Dates | 2008 |
| Status | Expert report, deposed, trial, testified at ITC. |

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| Client | Morrison and Forrester (Advance Micro-Fabrication Equipment) |
| Case | Applied Materials v. Advanced Micro-Fabrication Equipment C07 05248 JW (PVT) |
| Project | Semiconductor equipment manufacturer trade secret case. Reviewed numerous CAD documents related to equipment design. |
| Dates | 2008 |
| Status | Expert report, deposed, settled. |

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| Client | Ropes and Gray (Entegris) |
| Case | Pall v. Entegris, 05-CV-5894 (BMC)(WDW), United States District Court, Eastern District of New York |
| Project | Patent dispute, filter patents. |
| Dates | 2006 to present |
| Status | Settled. |

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| Client | Thelen Reid and Priest, San Jose, CA ( Celerity) Keith Slenkovich (attorney) |
| Case | Celerity vs. Ultra-Clean Technologies CASE NO. 05-CV-04374 MMC, United States District Court, Northern District of California |
| Project | Patent disputes, semiconductor processing equipment, ultra high purity gas delivery systems. |

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| Dates | 2005-2007 |
| Status | Tried. Testified. |

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| Client | Foran Glennon Palandech and Ponzi, Chicago, IL (American Insurance Underwriters)<br>James Glennon (attorney) |
| Case | International Arbitration, Tokyo |
| Project | Analysis of complete destruction of an entire FAB due to facility design, equipment design, installation, process monitoring and control, etc. |
| Dates | 2004-2007 |
| Status | Arbitrated. Testified in International Arbitration. |

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| Client | Morgan & Finnegan LLP, NY, NY ( ATMI)<br>Kramer, Levin, Naftalis & Frankel LLP<br>Ted Mlynar (attorney) |
| Case | ATMI vs. Praxair,<br>Case No. 03 CV 5161, US District Court, Delaware |
| Project | Patent dispute, high purity hazardous chemical cylinder patents. |
| Dates | 2004-2006 |
| Status | Tried. Testified. |

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| Client | Cooley Goddard LLP, Broomfield, CO (Advanced Energy)<br>Jim Brogan (attorney) |
| Case | MKS Instruments Inc. vs. Advanced Energy<br>C.A. No. 03-469 (JJF), US District Court, Delaware |
| Project | Patent dispute regarding remote plasma technology. |
| Dates | 2004-2005 |
| Status | Tried. Testified |

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| Client | Kerr & Wagstaffe LLP, Attorneys (HT Components) |
| Case | General Components, Inc. V. HT. Components, U.S.A., Inc.<br>Case No. C 01-20925 JF |
| Project | Review of breach of contract for semiconductor equipment components. Reviewed CAD drawings for high purity fittings. |
| Dates | Approximately 2002 |
| Status | Settled |

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| Client | Keker & Van Nest, San Francisco, CA, (ASM)<br>ASM America, Inc. et al v. Genus, Inc.<br>Stuart Gassner (attorney) |
| Case | Civil Action No. C 01-02190 EDL |
| Project | Atomic Layer Deposition (Secquential CVD) patent infringement.<br>Patents:<br>6,015,590 Method for growing thin films.<br>5,916,365 Sequential Chemical Vapor Depositions. |

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| Dates | 2001-2002 |
| Status | Settled |

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| Client | Orrick Herrington & Sutcliffe, LLP ( Applied Materials)<br>Gary Weiss (attorney) |
| Case | Applied Materials, Inc. v. LTD Ceramics et al<br>U.S.D.C. Case No. C01-20478 JF PVT ADR |
| Project | Misappropriation of trade secrets. Reviewed numerous CAD documents related to semiconductor equipment design. |
| Dates | 2001-2003 |
| Status | Settled |

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|---|---|
| Client | Knobbe Martens, Olsen Bear, Newport Beach, CA, (Air Products) |
| Case | Advanced Delivery & Chemical Systems v. Air Products and Chemical, Inc.<br>Case A 99-CA-406 SS |
| Project | Patents for chemical delivery. |
| Dates | 2000-2001 |
| Status | Settled |

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|---|---|
| Client | Mitsubishi Silicon America vs. Semitool, Inc.<br>Harrang Long Gary Rudnick (Salem, OR) |
| Case | CV 98-826-AA |
| Project | Semiconductor equipment breach of contract. |
| Dates | 1999-2000 |
| Status | Settled |

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|---|---|
| Client | Applied Materials, Inc. v. McDowell & Company, et al<br>Orrick Herrington & Sutcliffe LLP (Menlo Park, CA) |
| Case | 3-98CV-907-R |
| Project | Misappropriation of trade secrets. I reviewed numerous CAD documents related to semiconductor equipment design. |
| Dates | 1999 |
| Status | Settled civil case. |

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| Client | Applied Materials, Inc. v. David Biehl, et al<br>Orrick Herrington & Sutcliffe LLP (Menlo Park, CA) |
| Case | CR95-20082 RMT PVT |
| Project | Misappropriation of trade secrets. I reviewed numerous CAD documents related to semiconductor equipment design. |
| Dates | 1999 |
| Status | Settled civil case. Criminal Conviction. |

## Education

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| 2003 | Stanford University | Ph.D., Materials Science and Engineering |
| 1995 | Stanford University | M.S., Materials Science and Engineering |
| 1987 | University of California, Berkeley | M.S., Mechanical Engineering |
| 1985 | University of California, Berkeley | B.S., Mechanical Engineering |

## Patents

| Patent Number | Date Issued | Title |
|---|---|---|
| 10,658,206 | May 19, 2020 | Method of forming a composite substrate for layered heaters |
| 10,395,953 | Aug. 27, 2019 | Composite substrate for layered heaters |
| 9,224,626 | Dec. 29, 2015 | Composite substrate for layered heaters |
| 7,118,090 | Jan 20, 2007 | Control Valves |
| 6,679,476 | Jan. 20, 2004 | Control Valves |
| 6,204,174 | Mar. 20, 2001 | Method and Apparatus Rate Deposition of Tungsten. |

## Publications and Conference Presentations (selected).

A.D. Glew, M.A. Cappelli, "Characterization and dielectric properties of fluorinated amorphous carbon measured by capacitance-voltage versus spectral ellipsometry", *Materials Research Society Symposium Proceedings,* **593***,* Boston, MA, 1999, pp. 341-346.

A.D. Glew, M.A. Cappelli, "In situ plasma analysis, fluorine incorporation, thermostability, stress, and hardness comparison of fluorinated amorphous carbon and hydrogenated amorphous carbon thin films deposited on Si by plasma enhanced chemical vapor deposition", *Material Research Society Symposium Proc*., **565**, San Francisco, CA 1999, pp 285-290.

A.D. Glew, R. Saha, M.A. Cappelli and J.S. Kim, "Ion Energy and Flux Dependence of Diamond Like Carbon Film Synthesis in Radio-Frequency Discharges", *International Conference on Metal Coatings and Thin Films,* Surface and Coatings Technology 114 (1999) 224-229.

A. Glew, R. Saha, M. Cappelli and J. Kim, "Ion Energy and Flux Dependence of Diamond Like Carbon Film Synthesis in Radio-Frequency Discharges", *International Conference on Metal Coatings and Thin Films*, San Diego, CA, April 1998

A. Glew, J, Ammenheuser, M. Crockett, A. Johnson, W. Dax, R. Binder, J. Riddle, "SEMASPEC 97043272A Accelerated Life Tests of Gas System Performance and Reliability," *http://www.sematech.org/public/docubase/abstract/3272atr.htm*.

A. Glew, J. Ammenheuser, J. Riddle, A. Johnson, "SEMASPEC 96083175A-XFR Determining the Effects of Impurities on Semiconductor Thin Film Processing," *http://www.sematech.org/public/docubase/abstract/3175axfr.htm.*

A Glew, "Selecting Gas Purity and Materials of Construction in High Purity Gas Systems," *Semicon West Symposium on Corrosion*, July 1997

Glew, J. Kim, K. Lee, M. Cappelli, "On the Characteristics of Diamond Like Carbon",
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**Professional Associations**

American Society of Mechanical Engineers (ASME)
International Microelectronics and Packaging Society (IMAPS)
Materials Research Society (MRS)
IEEE

**Civic Role**

Los Altos Rotary Club

**Professional License**

Licensed Mechanical Engineer, State of California, M26690