

Paul Brunemeier, Ph.D.



Product Development Expert (paul@etaboost.com)

Semiconductors

<http://www.directoryinventor.com/profile/view/Sa0vt2SP>

Experience

Sole Proprietor

EtaBoost

Semiconductors

2009 - Present

Improving design, performance, and yield for solid state device businesses

Senior Director of Engineering

Amprius Inc

11-50 employees; Privately Held; Renewables & Environment

2011 - 2012

For a silicon nanostructure battery company, recruited and led team of experts that developed stable BKM's from benchtop demonstrations, and implemented process tools that scaled up throughput by 200x. Designed very low cost production equipment for three-dimensional deposition processes.

Lean Innovation Manager

Philips Lumileds

1001-5000 employees; Privately Held; Semiconductors

2010 - 2011

Developed and implemented R&D business processes for a premium LED manufacturer to reduce cycle time of core processes by 33%. Managed budgets and schedules for dozens of projects in the Technology R&D department.

Interim VP of Engineering

AMST

Nanotechnology

2008 - 2009

Led a team that developed ALD/CVD equipment for MEMS, solar, optoelectronics, microfluidics, nano imprint lithography, and semiconductor manufacturing. Implemented Lean Innovation methodology.

Managing Director

Design for Manufacturing Services

Semiconductors

2005 - 2008

Developed Lean design and manufacturing processes for semiconductor and flat panel equipment manufacturers, with typical product cost savings of 20-50%. Rapid product prototyping and evaluation. Accurate, data-supported cost analysis. Consistently met revenue plan at gross margin targets.

Director, Process Equipment Business

Vykor Inc.

11-50 employees; Privately Held; Computer Software

2003 - 2005

Spearheaded business development for an engineering services start up in semiconductor capital equipment.

Senior Strategic Technology Manager

Novellus Systems

1001-5000 employees; Public Company; Semiconductors

1997 - 2003

Determined technical performance specs and launched Novellus' fastest growing product, Vector PECVD. Invented and patented a directly-photopatternable ULK dielectric ($k = 2.0 - 2.2$) based on SiO₂.

Senior Process Technologist

Lam Research

1001-5000 employees; Public Company; Semiconductors

1995 - 1997

Invented and patented a plasma process that dramatically reduced particle contamination. Tested process in customer split-lot evaluation and proliferated it to the field.

Head, Fab Operations

Power Spectra

Semiconductors

1992 - 1995

Responsible for all aspects of developing and manufacturing a novel three-terminal AlGaAs LED, from substrate and epitaxy to die separation, wire bond, and packaging. Transferred and started up a novel AlGaAs growth technology and epitaxy reactor from the Ioffe Institute in Russia.

Education

University of Illinois at Urbana-Champaign

Physics, optical semiconductors

Activities and Societies: American Physical Society, IEEE, Inner Tube Water Polo

Research in the laboratory of Nick Holonyak, Jr., the inventor of the LED. Developed epitaxy and device processing for quantum well lasers. Measured epitaxial growth kinetics and transients, optimal conditions for growth of homogeneous alloys, and heterojunction band edge offsets, for InP / InGaAsP (1.05 to 1.55um)

Patents (1)

[Inhomogeneous materials having physical properties decoupled from desired functions \(16 worldwide citation\)](#)

Paul E Brunemeier, Archita Sengupta, Justin F Gaynor, Robert H Havemann
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