Michael D. Schmitt, PhD
Senior Associate

T (617) 248-4789 | M (815) 988-6002
mschmitt@choate.com

_____

Practice Areas

Intellectual Property Protection

Technology

Education

Suffolk University Law School
JD (2022)

Carnegie Mellon University
PhD (2015) Materials Science & Engineering
BS (2011) Materials Science & Engineering,
Russian Studies, and Mathematical Science

Admissions

Massachusetts
U.S. Patent & Trademark Office

Dr. Michael Schmitt helps clients across diverse technology spaces including semiconductor devices and processing, batteries, nanotechnology, optics, software, and medical devices to build and protect their intellectual property portfolios. Working in interdisciplinary teams that span the fields of chemistry, materials characterization, semiconductor devices and processing, computational modeling, nanotechnology and soft materials, he provides key insights into patent prosecution, portfolio strategy, due diligence, freedom-to-operate, invalidation, and litigation matters for a range of academic and industrial clients.

While working as a postdoctoral researcher in Carnegie Mellon University's Department of Materials Science and Engineering, Michael's work focused on utilizing polymer-based grafting approaches for improving efficiency and patternability of quantum-dot-based solid-state lighting devices. This work built on that done during his Ph.D. at Carnegie Mellon in Professor Michael Bockstaller's lab where he utilized surface-initiated atom transfer radical polymerization to control interactions between nanoparticles by precisely tailoring polymer graft architecture for improved mechanical performance, facile nano-domain patterning, and tunable bulk properties of flexible particulate assemblies. By treating these grafted particles as "building blocks" and focusing on simple systems comprised of one type of block, his work made significant advances in overcoming fundamental materials challenges relevant to the fields of soft photonics, phononics, and solid-state lighting among others.

Prior to his Ph.D. work, Michael worked on various projects in the fields of traditional light-emitting diode based solid-state lighting, novel Ohmic contact materials in such devices, and semiconductor processing in the lab of Professor Robert Davis at Carnegie Mellon.

Publications and Presentations

- "Small Changes, Big Opportunity: Nanotechnology and Intellectual Property Law," co-author, _The SciTech Lawyer_, October 2019

- "Polymer ligand-induced autonomous sorting and reversible phase separation in binary particle blends," first author, _Science Advances_

- "Processing Fragile Matter: Effect of Polymer Graft Modification on the Mechanical Properties," first author, _Soft Matter_

- "Tailoring Structure Formation and Mechanical Properties of Particle Brush Solids via Homopolymer Addition," first author, _Faraday Discussions_

- "Grafting PMMA Brushes from α Alumina Nanoparticles via SI-ATRP," co-author, _ACS Applied Materials and Interfaces_

- "Enhancing Initiation Efficiency in Metal-Free Surface-Initiated Atom Transfer Radical Polymerization (SI-ATRP)," co-author, *ACS Macro Letters*

- "New Class of Tunable Hypersonic Phononic Crystals Based on Polymer-Tethered Colloids," co-author, *Nature Communications*

- "Matrix-free Particle Brush System with Bimodal Molecular Weight Distribution Prepared by SI-ATRP," co-author, *Macromolecules*

- "Role of Polymer Graft Architecture on the Acoustic Eigenmode Formation in Densely Polymer-Tethered Colloidal Particles," co-author, *ACS Macro Letters*

- "Surface-initiated Polymerization as an Enabling Tool for Multifunctional (Nano-) Engineered Hybrid Materials," co-author, *Chemistry of Materials*

- "Effect of Polymer-Graft Modification on the Order Formation in Particle Assembly Structures," co-author, *Langmuir*