



Todd A. Sayles, Ph.D. He/Him/His

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Todd Sayles, Ph.D., brings a scientific and engineering background to Banner Witcoff, and his practice interests include the preparation and prosecution of patents in a variety of fields.

Prior to working in patent law, Todd had been a U.S. naval submariner, a researcher, and an engineer. In the navy, Todd was a member of a team that operated a naval nuclear power plant. In addition to maintaining and operating critical equipment on the nuclear plant, Todd monitored the chemistry of the primary and secondary plants and monitored radiation levels throughout the vessel.

As a researcher, Todd studied the properties of materials at low temperatures where their quantum behaviors emerged. Todd grew the materials he characterized using various methods and built the devices and systems that reached the millikelvin temperatures necessary to study their quantum ground states. Todd specialized in low-temperature specific heat measurements where he could measure the electronic ground states of a material and low-temperature magnetization measurements which utilized a superconducting quantum interference device to probe the magnetic properties of a material.

As an engineer, Todd led a team in developing new instruments that reached liquid helium temperatures without the use of liquid helium and facilitated the gathering of a material's properties over a wide range of temperatures and applied magnetic fields and are used in material research institutions worldwide. These devices relied on the expansion of helium gas and the use of regenerative materials to reach temperatures below 4.2K

Todd's scientific work has been presented at international scientific conferences and published in scientific journals such as Physical Review Letters, Physical Review B, Nature Physics, and Journal of Low Temperature Physics.

Education

University of Arizona
B.S., Physics & Mathematics, *Summa Cum Laude*

University of California, San Diego
M.S., Physics
Ph.D., Physics

University of San Diego School of Law
J.D.

Admissions

Bar Admissions
2022, California

Court Admissions
U.S. Patent and Trademark Office

Industries

Chemistry + Chemical Engineering
Electrical + Computer Technologies