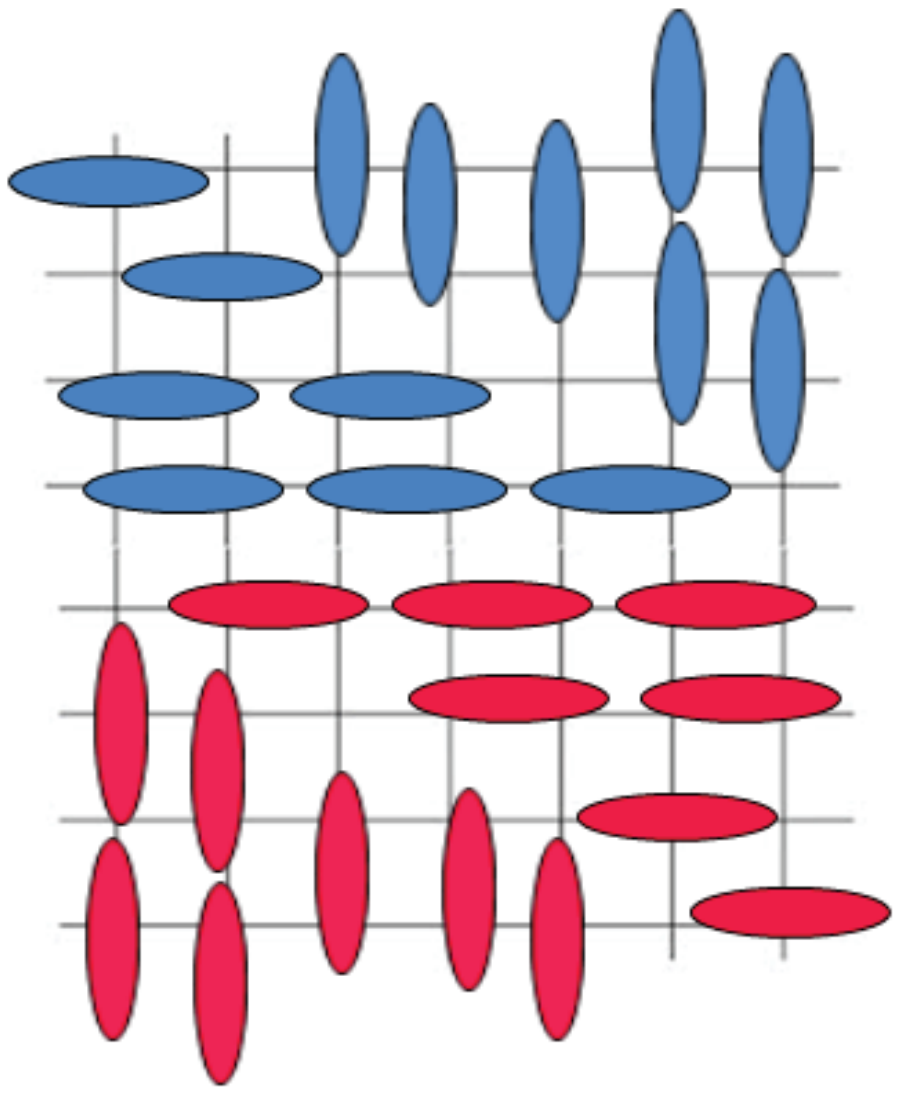
Argonne NATIONAL LABORATORY

Laura H. Greene

High-Temperature Superconductivity: Taming Serendipity

As we pass the centenary of the discovery of superconductivity, the design of new and more useful superconductors remains as enigmatic as ever. As high-density current carriers with little or no power loss, high-temperature superconductors offer unique solutions to fundamental grid challenges of the 21st century and hold great promise in addressing our global energy challenges in energy production, storage, and distribution. Traditionally guided by serendipity, researchers in the field have grown into an enthusiastic global network to predictively design new superconductors. I will share our recent materials genome initiative and strive to convey the renewed passion we share in this international pursuit. I will also show how our point contact spectroscopy measurements aid in identifying promising candidates.



Laura H. Greene is the Chief Scientist at the National High Field Magnet Laboratory and the Francis Eppes Professor of Physics at Florida State University. Her research in condensed matter physics is in strongly correlated electron systems, including developing methods for predictive design of new families of superconductors. Her service to science includes Vice President of the American Physical Society (President 2017) and the Board of Directors of the American Association for the Advancement of Science. Greene is a member of the National Academy of Sciences, and a Fellow of the American Academy of Arts and Sciences, Institute of Physics (U.K.), American Academy of Arts and Sciences, American Association for the Advancement of Science, and the American Physical Society. She has been a Guggenheim Fellow, received the E.O. Lawrence Award for Materials Research, and the Maria Goeppert-Mayer Award. She has over 200 publications and over 450 Invited Talks.

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