

Visitor, Associates and Students' Programme (VASP) presents Webinar Series on
Quantum Materials & Devices



29 SEP 2021

04:00 PM



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TITLE

Finding New Materials – a Chemical Perspective

ABSTRACT

Finding new materials that are of interest in the community of materials physicists is, in my view, best done by using the insights and tools of solid state chemistry to direct exploratory synthesis towards finding materials with potentially new electronic and magnetic properties. Most solid state chemists do not feel comfortable with the language of physics, however, and further compounding the disconnect between physics and chemistry, materials physicists do not in general understand the complexities of chemistry and its language. Theoretical physicists, who I personally find to be lots of fun, seem even further in research culture from “bench chemists”, making chemical research even harder to aim towards forefront physics though it is the theorists who most often live in gardens of untested ideas. In this talk I plan to describe materials in several different chemical families that we have worked on in recent years from a chemical perspective, I think, with their potential significance to materials physics in mind. Some of them you may find interesting and others not so interesting. The main idea is to keep trying, propose and find new materials to see what most impacts the research community, welcome collaborations, and never give up.

SPEAKER

Professor Robert J. Cava is one of the most celebrated solid-state chemists and Russell Wellman Moore Professor of Chemistry at Princeton University. He worked as a staff scientist at Bell labs from 1979–1996 before joining Princeton University. He has major contributions in the field of superconductors, frustrated magnets, topological insulators and thermoelectrics. He has published more than 1000 peer-reviewed papers, more than 40 of them in journal Nature and 18 of them in Science. He is one of the most cited chemists in the world. He was elected as Foreign Member, The Royal Society in 2016 and awarded Linus Pauling award in 2012. He is also a fellow of National Academy of Sciences USA and has many other international awards.

