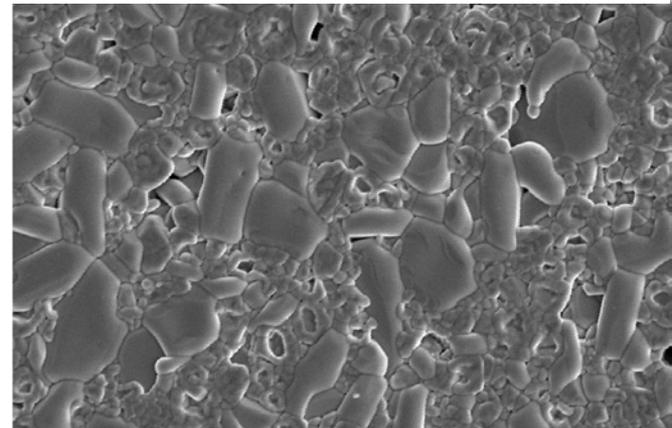
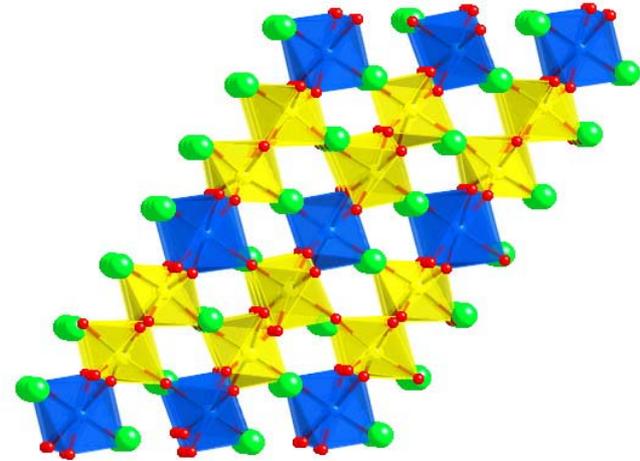


# "New Ordered Perovskite Dielectrics for Microwave Applications"

Peter K Davies (PI), University of Pennsylvania, DMR-0213489



Microwave ceramics are critical components in wireless communications devices that filter and combine signals in the microwave region. This project is focused on the design of new ceramic materials that will enable additional device miniaturization and enhanced signal resolution. The upper illustration shows the arrangement of the atoms in a new class of materials specifically designed for enhanced performance. The lower micrograph shows the grain structure in a composite microwave ceramic material which can be fabricated at temperatures significantly lower than those currently used in existing technologies.



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## Education and Outreach:

This grant has supported the research activities of undergraduate and graduate students involved in projects related to the synthesis, structure and property characterization of new microwave ceramic materials. One student (Albina Borisevich) was honored for her work through the receipt of the Graduate Student Award from the Materials Research Society. Several invited seminars have been presented by the PI at national and international meetings, to local industries involved in ceramics research, and in colloquia organized for local high school teachers. Students in the PI's group have also participated in the teaching of labs in a summer program aimed toward introducing high school students to materials research.



Albina Borisevich pictured at the award ceremony of the Fall 2002 Materials Research Society after receiving her Graduate student Award. Albina's research focused on the preparation of new microwave materials with low fabrication temperatures. She has now graduated with a PhD and is currently a post-doctoral researcher at the Oak Ridge National Laboratory.