

A Tribute to Jan Fousek: Domains and Polar Clusters in Modern Non-Linear Dielectric Materials

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This talk will begin with reflections of Jan's work and our discussions when he was on sabbatical at the Pennsylvania State University. During that time, he was very interested in understanding the limitations of transmission electron microscopy, which could probe the important questions under pinning ferroelectric and related domains. Since that time, there have been major advancements in the field of electron microscopy. I will attempt to fill in the new advances and opportunities that now are available and consider these in relation to many of the important physical concepts that involve domains and domain clusters. These include relaxor ferroelectrics, order-disorder, antiferroelectrics, and materials at the edge of stabilities, including the case of high electrical conductivity that limits the dipolar coupling.