Department of Materials Science and Engineering,

Candidacy Exam

12/10/24 10:00 AM
Bossone 302

Synthesis of 1D and 2D Titania

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One-dimensional (1D) and two-dimensional (2D) titanium-based materials have garnered significant attention due to their unique structural features and remarkable potential in diverse applications, including catalysis, energy storage, and environmental remediation among many others. The synthesis of these materials plays a crucial role in determining their morphology, overall functionality and ultimate applications.

In this presentation, various synthesizing techniques for 1D and 2D titania will be discussed in detail. Focus will be placed on understanding the fundamental principles of these methods and the key parameters—such as temperature, precursor concentration, pH, and reaction time—that influence the resulting morphology and properties. By exploring these aspects, the presentation aims to provide a comprehensive overview of the synthesis-property relationship and highlight opportunities for further optimization.