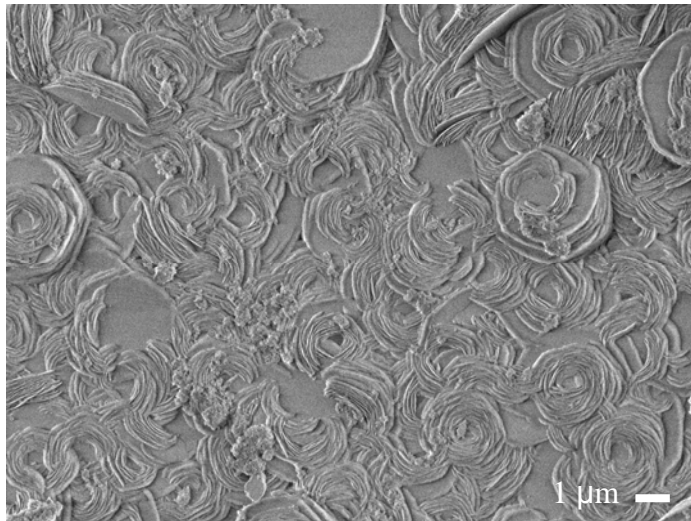


Continuous c-Oriented $\text{AlPO}_4\text{-5}$ Films by Tertiary Growth

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● Aluminophosphate $\text{AlPO}_4\text{-5}$ Thin Films

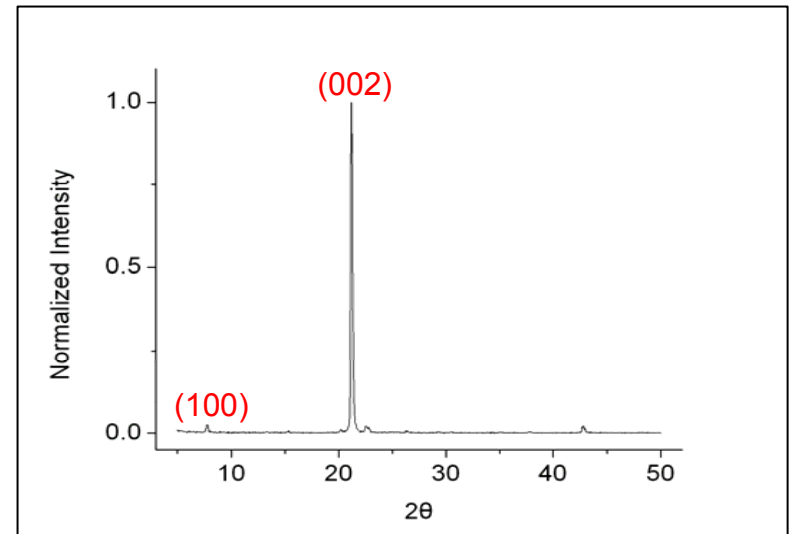
- ◆ Pores of uniform cross section (7.3 Å) extended to long (c) axis of crystal
- ◆ Strategy is to control crystal growth and orientation by optimizing synthesis conditions
- ◆ Applications in size-selective chemical sensors and separation membranes



SEM image of a uniform and continuous oriented $\text{AlPO}_4\text{-5}$ film

● Synthesis and Characterization

- ◆ Secondary growth on Si substrates yielded non-intergrown, highly oriented columnar crystals
- ◆ Exposing to a tertiary growth resulted in well-intergrown, highly oriented columnar crystals
- ◆ SEM and XRD from University of Minnesota Characterization Facility



Corresponding XRD pattern of tertiary growth film

G.N. Karanikolos, J.W. Wydra, J.A. Stoeger, H. Garcia, A. Corma, and M. Tsapatsis. Chem. Mater. 19 (4) 792-797 2007.