Developing High Dielectric Constant Nanoinks From Group 4 Metal Alkoxide Precursors

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Problem:
Direct Write Robotics Laboratory needs inks containing “high quality” group 4 metal oxide nanoparticles.

Goal:
To synthesize hafnia nanoparticles from novel precursors that were synthesized using the H$_3$-AM-DBP$_2$ tridentate ligand.

Method:
• Novel precursors were synthesized by reacting H$_3$-AM-DBP$_2$ with available precursors
• Hafnia was synthesized through solution precipitation route

Results:
![Novel precursor](image1)
![Hafnia nanoparticles](image2)

Future Work:
• Test different nanoparticle synthesis preparations
• Make inks containing the nanoparticles for use in Direct Write