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Chemical Insights into the Preparation of Multifunctional Metal-Oxide Nanoparticles for Enhanced Imaging and Theragnostic

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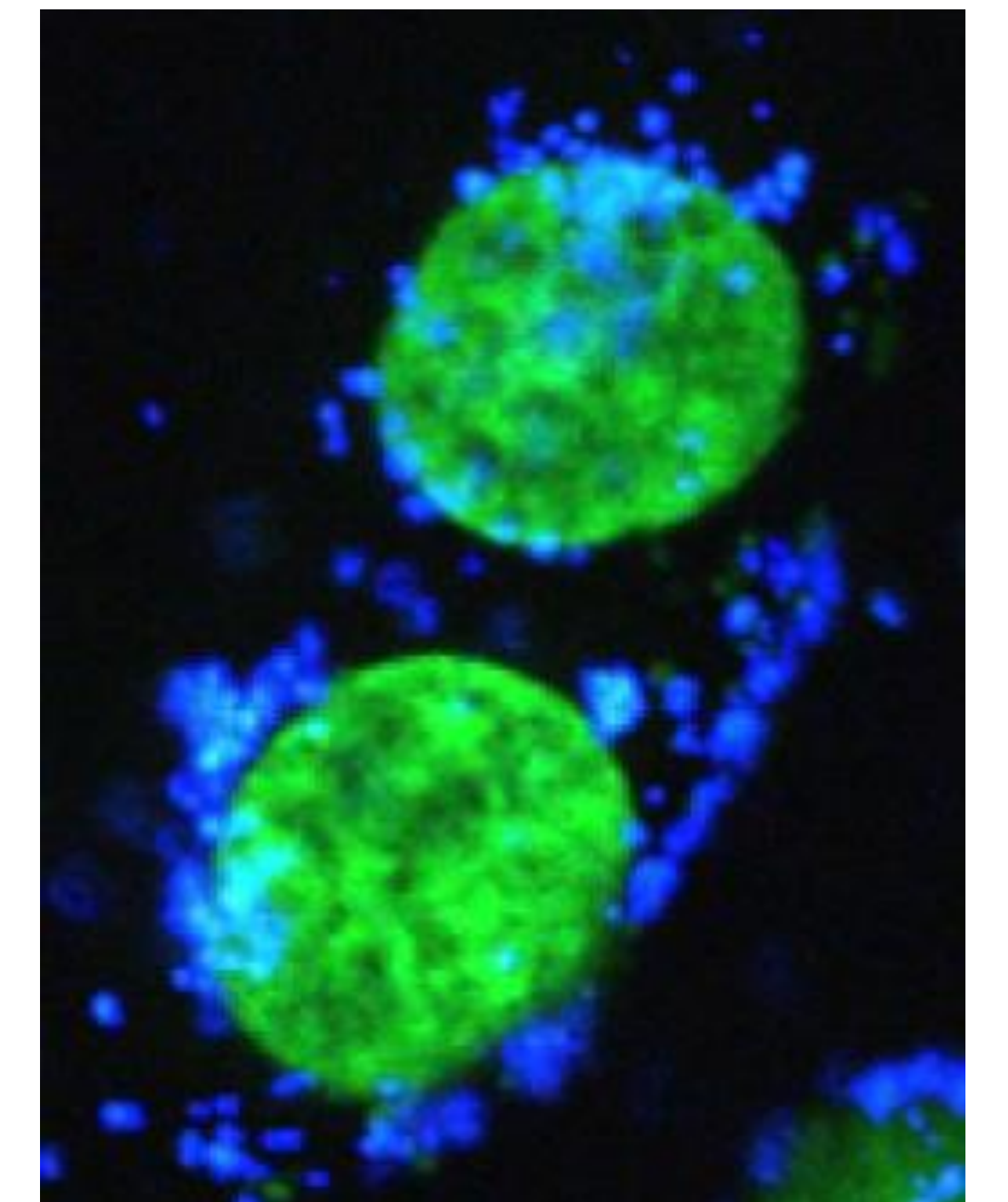
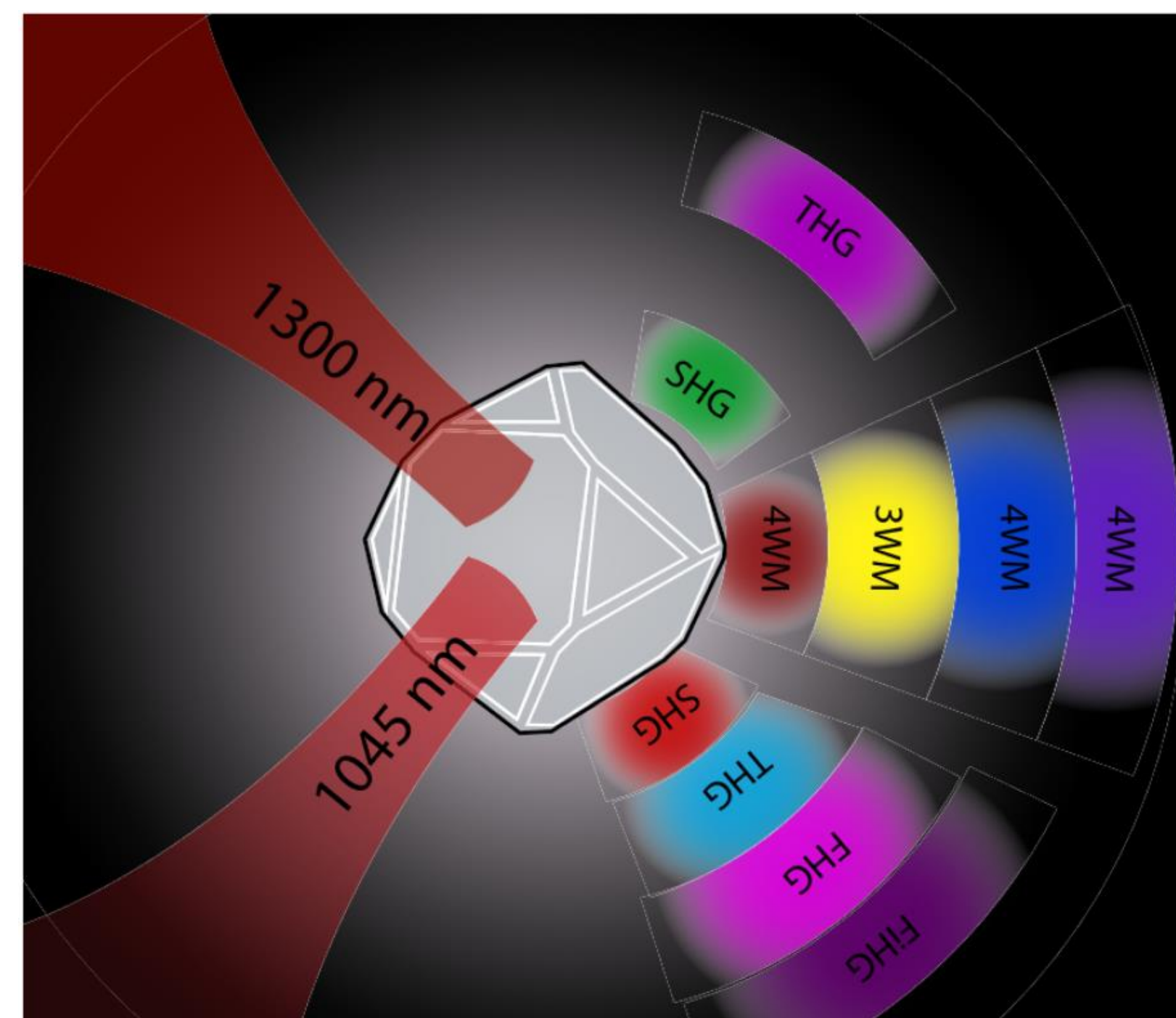
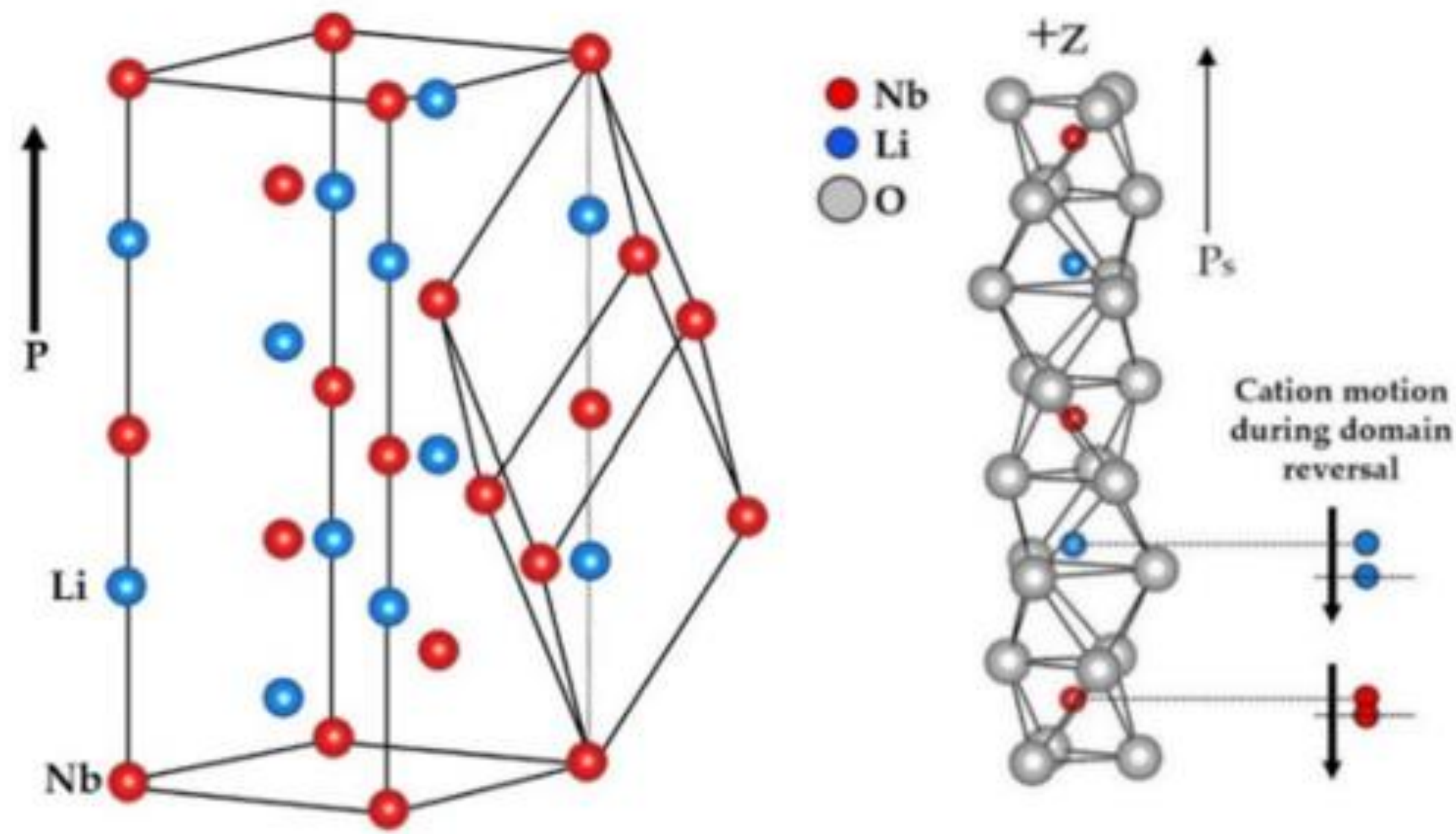
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Chemical Insights into the Preparation of Multifunctional Metal-Oxide Nanoparticles for Enhanced Imaging and Theragnostic

Ameni Dhouib¹, Tianhao Guo¹, Emilie Molina¹, Sandrine Beauquis¹, Virginie Monnier², Ronan Le Dantec¹, Yannick Mugnier¹

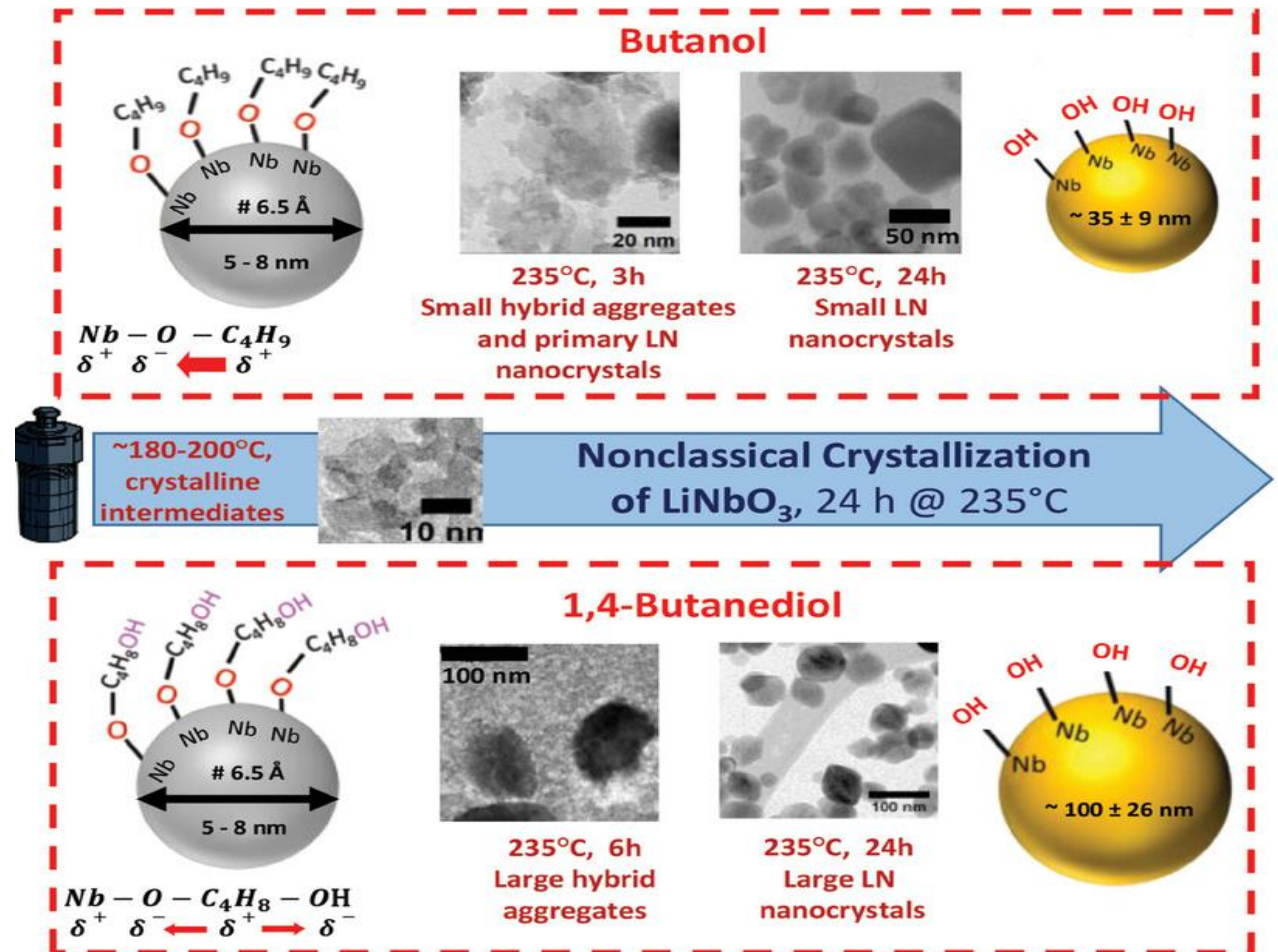
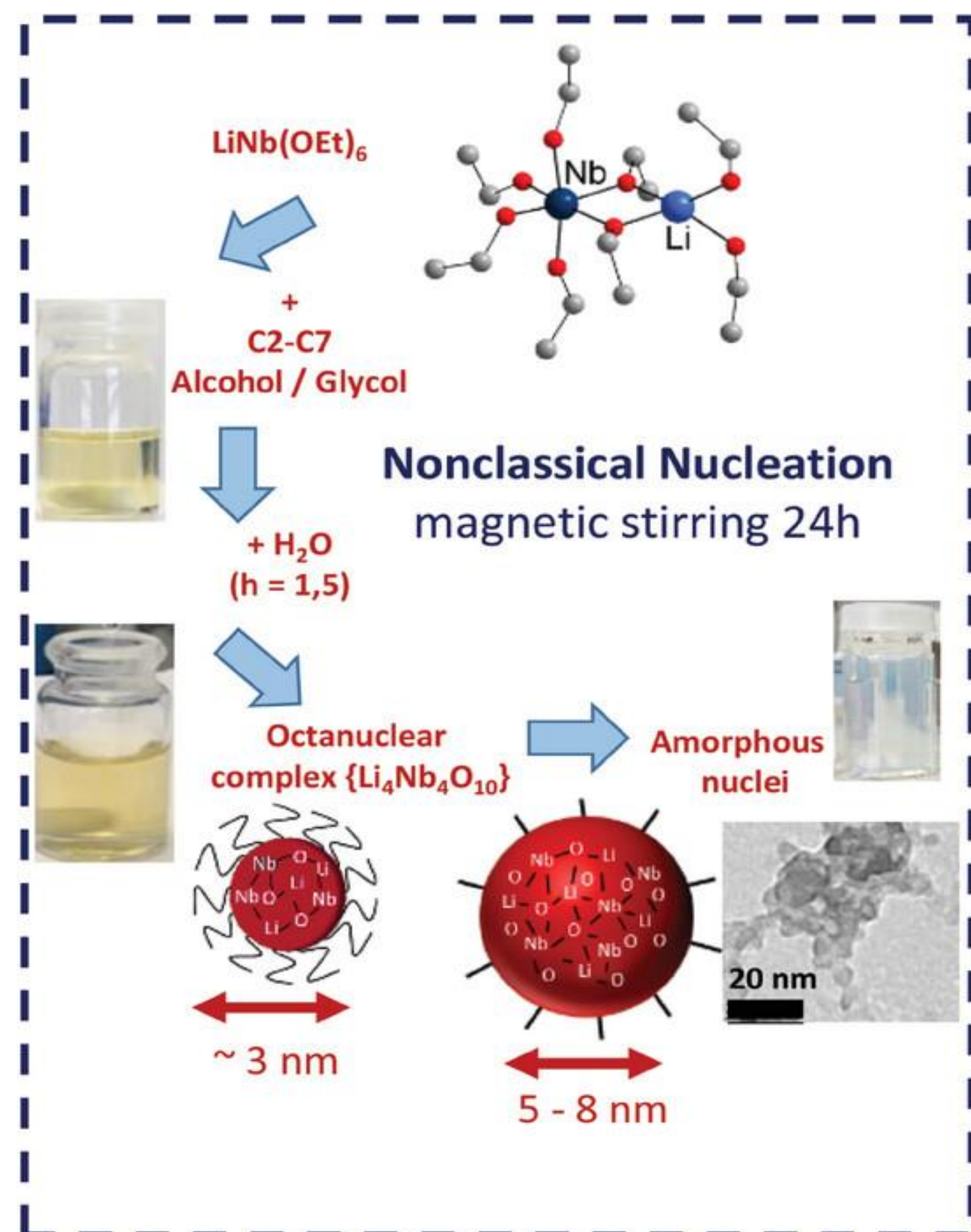
Objective: the development of multimodal agents capable of generating multiple contrasts through various physical mechanisms, including MRI, CT, luminescence, and nonlinear processes

Introduction:



Non-centrosymmetric structure → Non-linear optical properties (SHG, THG.. and 4WM)

Methods and Results:

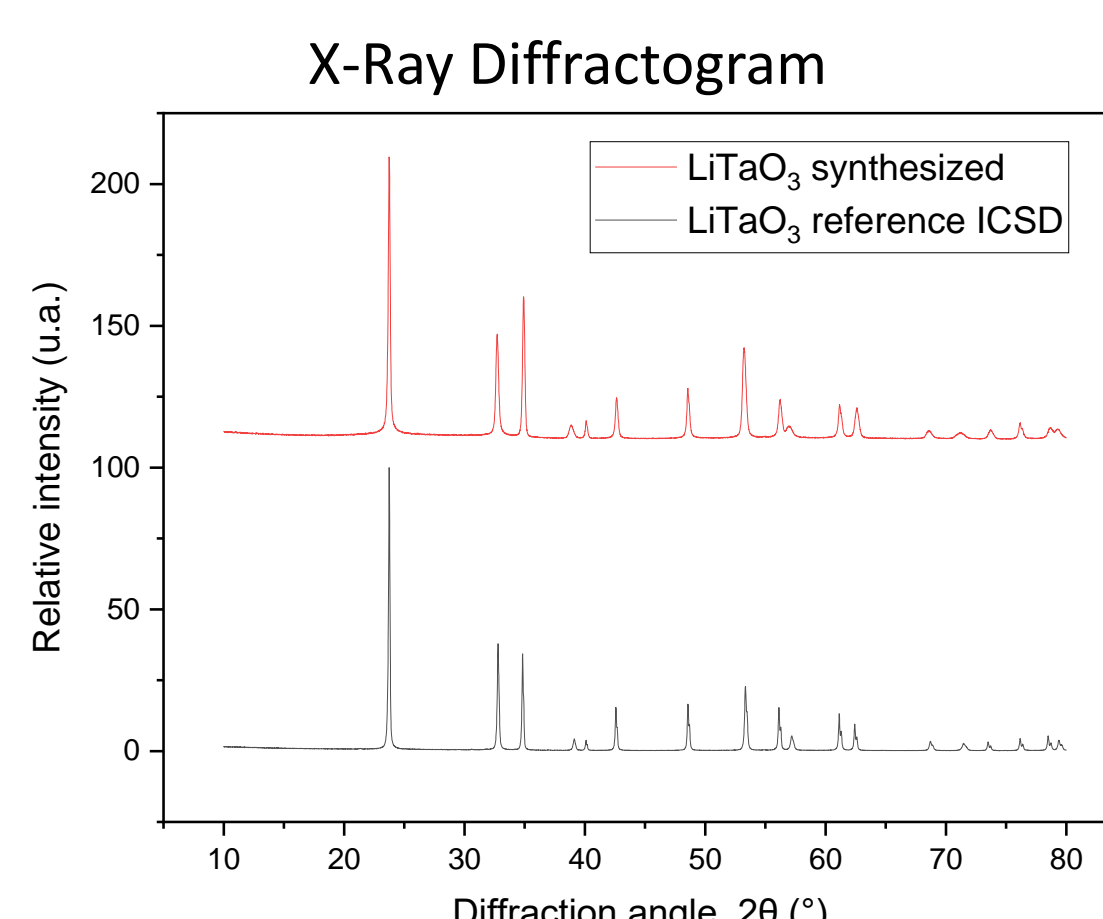
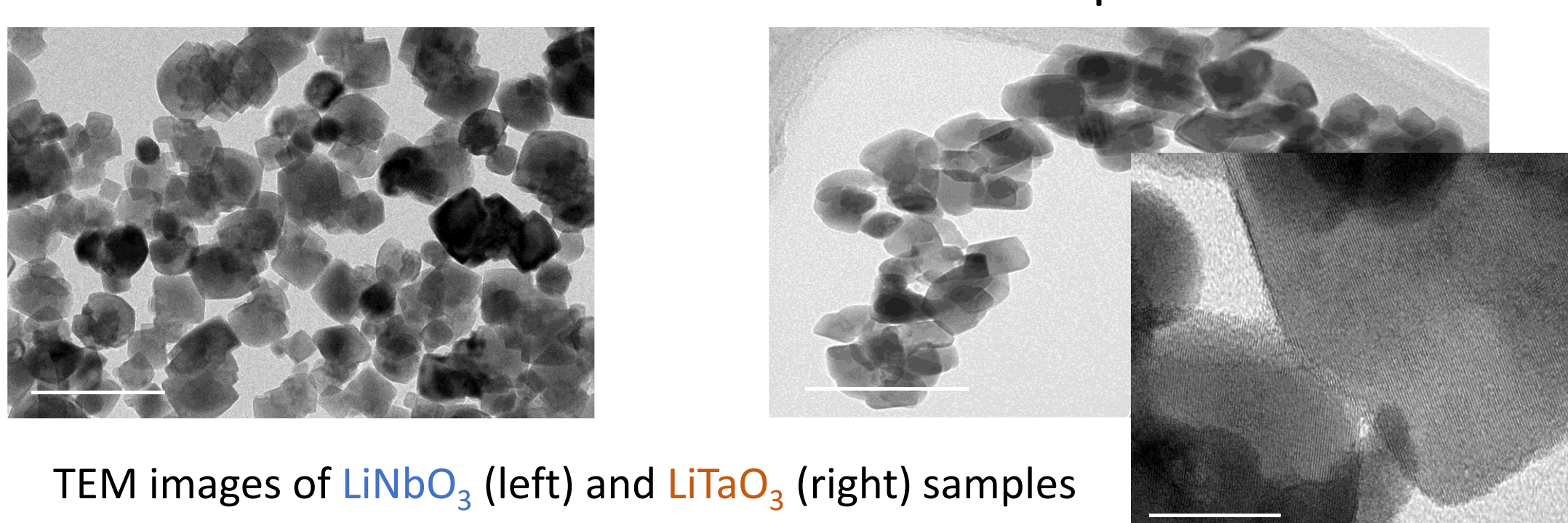


Overview of the nonclassical nucleation scheme and aggregation-mediated crystallization process with a special focus on the butanol and 1,4-butanediol co-solvents. [3]

A step further:

Substituting Nb with Ta :

A higher CT contrast is expected since tantalum has a K-edge at 67.4 keV which is well-suited for most current CT scanners. → New feature added to the nanoprobe.



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