Heterometallic Uranyl Alkoxides: Revisiting the Non-Aqueous Uranyl Chemistry

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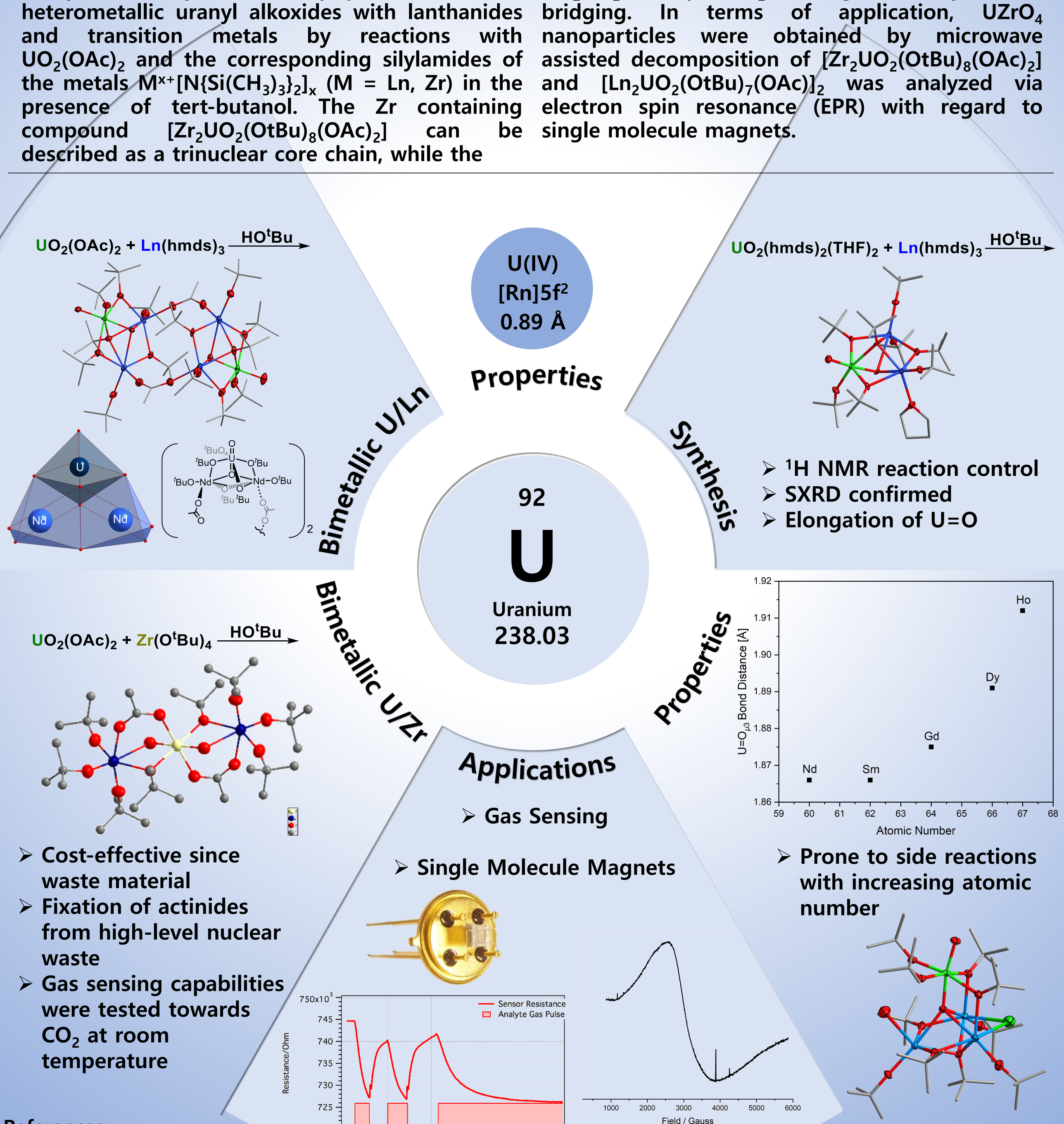
ABSTRACT: **We have revisited non-aqueous uranyl chemistry and hereby present the first heterometallic uranyl alkoxides with lanthanides and transition metals by reactions with $UO_2(OAc)_2$ and the corresponding silylamides of the metals $M^{x+}[N\{Si(CH_3)_3\}_2]_x$ (M = Ln, Zr) in the presence of tert-butanol. The Zr containing compound $[Zr_2UO_2(OtBu)_8(OAc)_2]$ can be described as a trinuclear core chain, while the lanthanides lead to a planar triangle $[Ln_2UO_2(OtBu)_7(OAc)]_2$ forming dimers by acetate bridging. In terms of application, $UZrO_4$ nanoparticles were obtained by microwave assisted decomposition of $[Zr_2UO_2(OtBu)_8(OAc)_2]$ and $[Ln_2UO_2(OtBu)_7(OAc)]_2$ was analyzed via electron spin resonance (EPR) with regard to single molecule magnets.**



References:

[1] C. J. Burns, D. C. Smith, A. P. Sattelberger, H. B. Gray, *Inorg. Chem.* 1992, *31*, 3724–3727.