

1. FOUNDATIONAL REVIEWS

Invite Review, Rep. Prog. Phys. 87 (2024) 066501

Crystal structure and magnetism of actinide oxides: a review

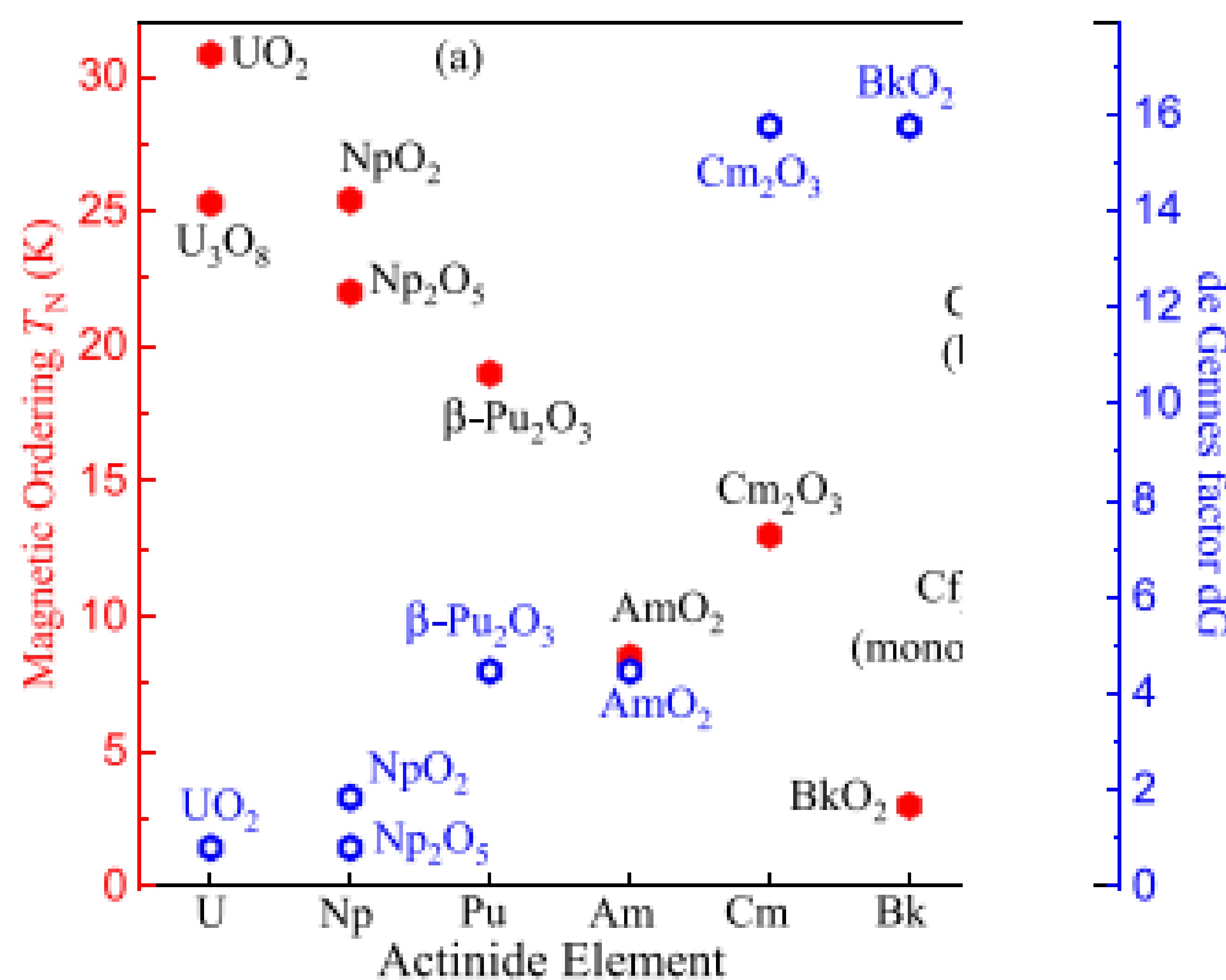
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Topical Review, J. Phys.: Condens. Matter 34 (2022) 273002

Review on crystal structures and magnetic properties of RTX_3 materials

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LDRD IMPACT AT A GLANCE

- Six peer-reviewed publications, One under review
- Field-defining reviews
- First-ever neutron and spectroscopy measurements in Np compounds
- Collaborations across 3 national labs and 4 universities

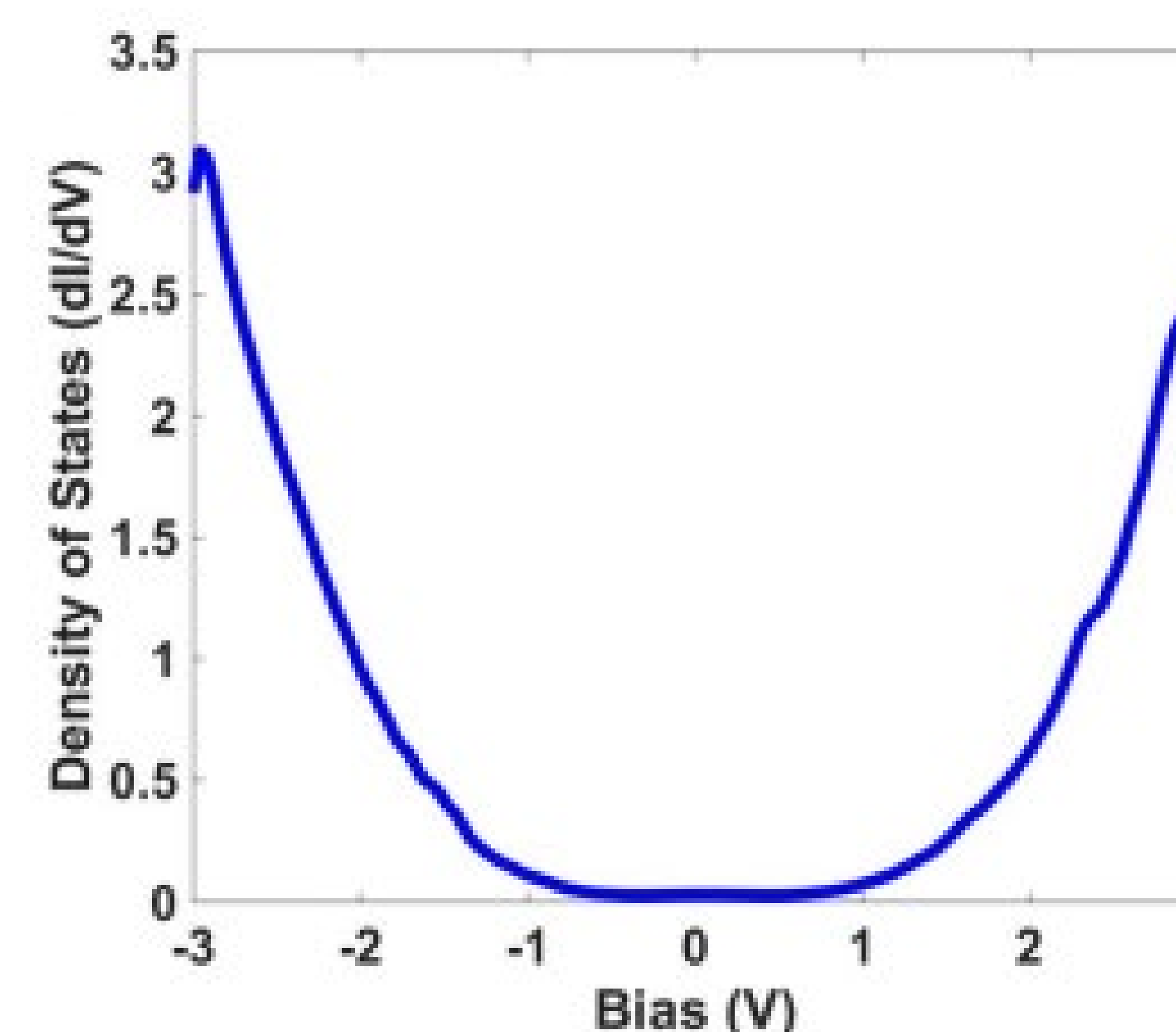
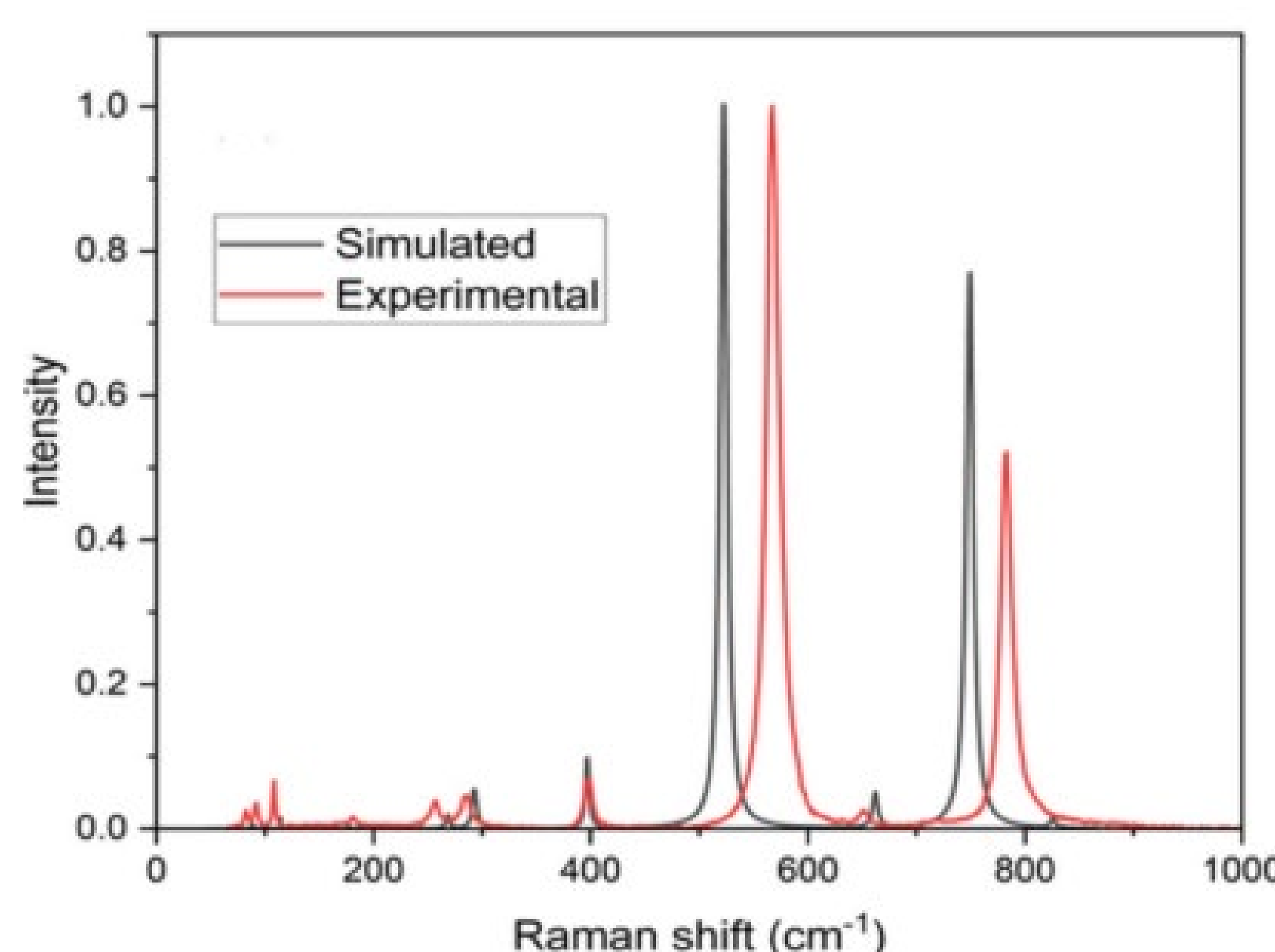
2. FIRST-OF-KIND SPECTROSCOPY

Raman + Scanning Tunneling Spectroscopy of Np_2O_5

Scientific Reports (2026) 16:1088 nature portfolio

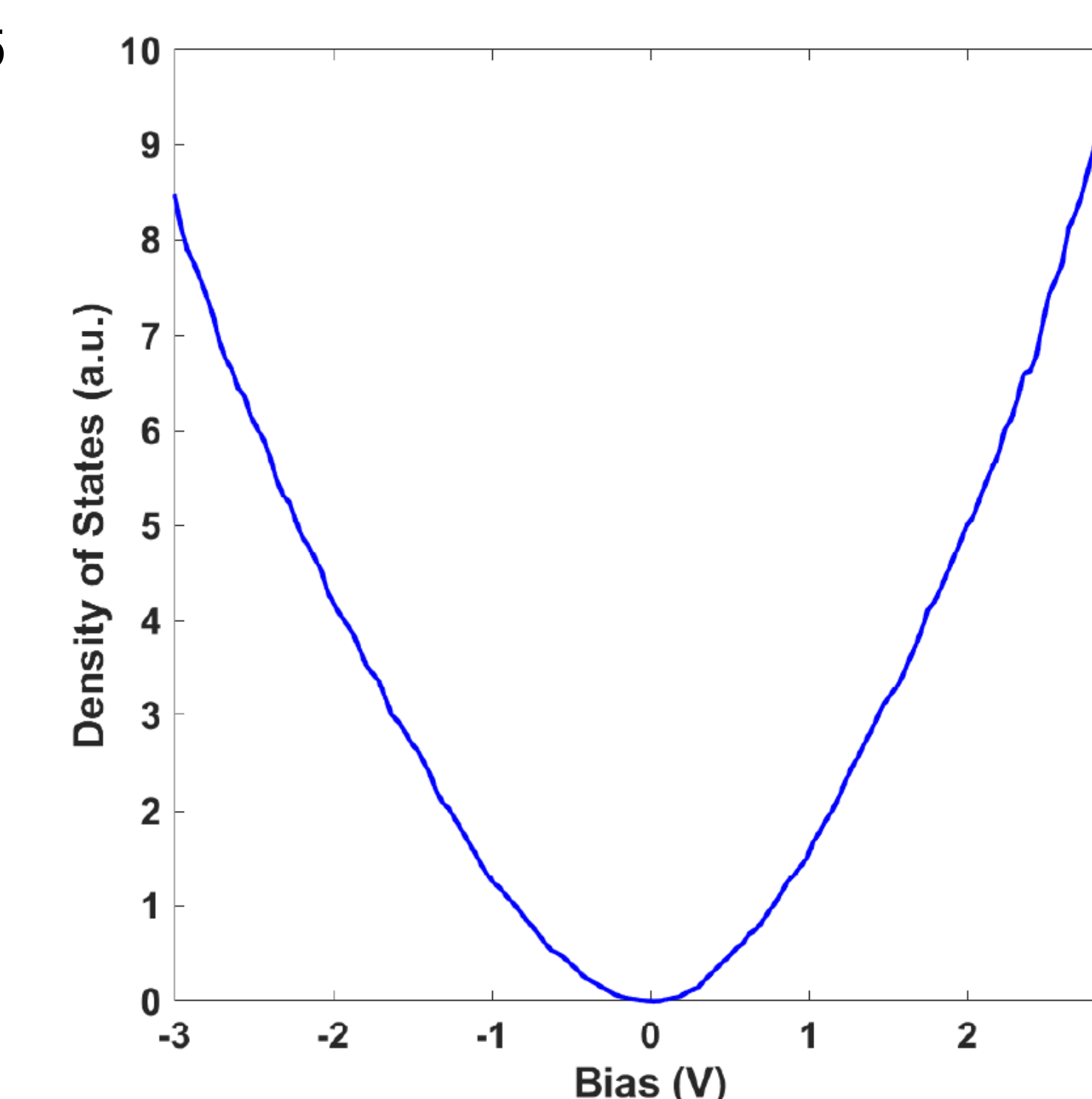
Vibrational and electronic properties of Np_2O_5 from experimental spectroscopy and first principles calculations

Binod K. Rai¹, Shuxiang Zhou², Benjamin R. Heiner³, Gia Thinh Tran¹, Jennifer E. S. Szymanowski⁴, Santosh KC⁵, Thomas C. Shehee¹, Peter C. Burns⁴, Miles F. Beaux II³ & Luke R. Sadergaski⁶



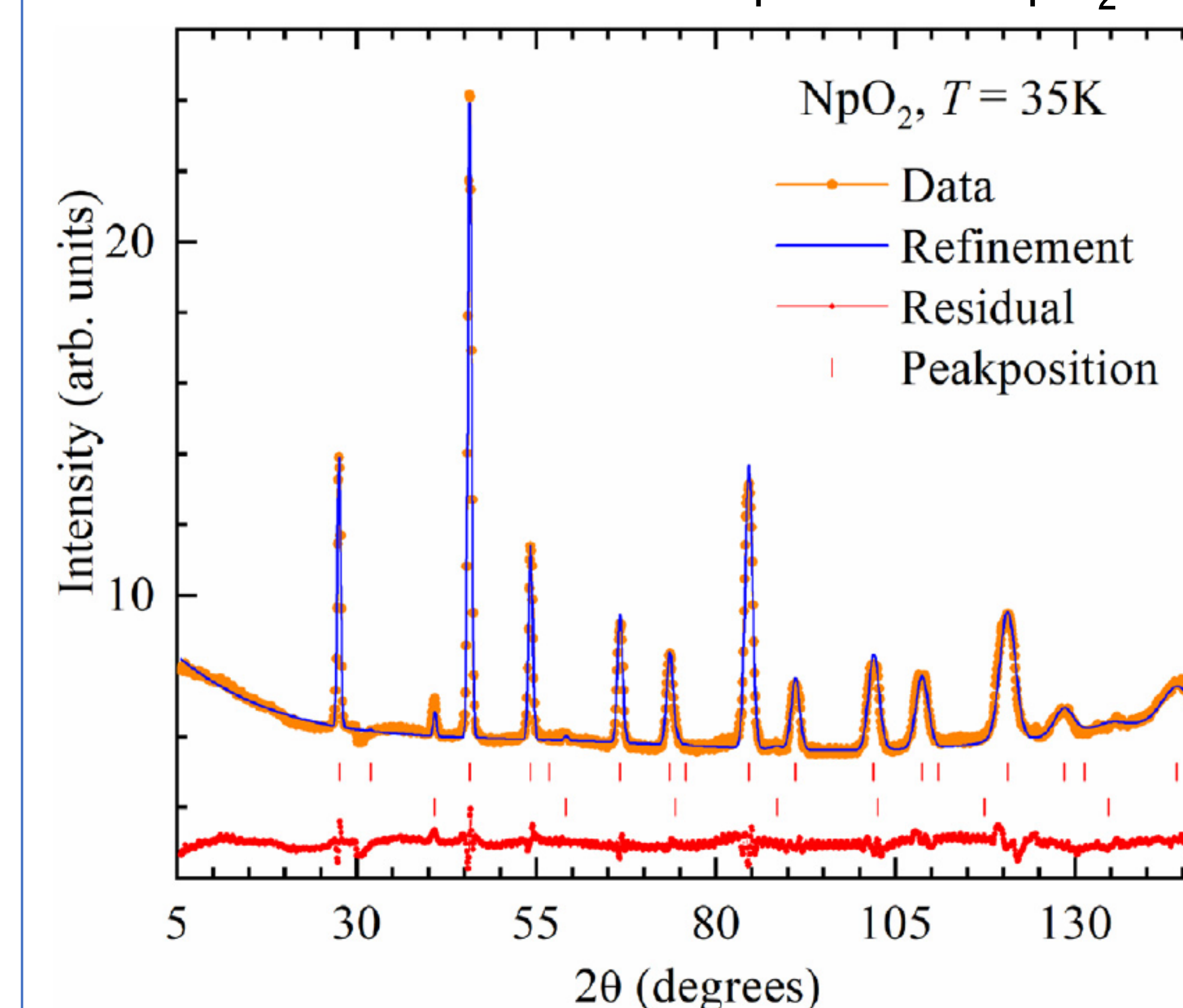
3. ELECTRONIC INSIGHT

Oxygen Vacancies Drive f -orbital Density into the Band Gap of Np_2O_5



4. DOE Users Facility

First ever neutron diffraction pattern of NpO_2



5. SRNL ACTINIDE LABORATORY



Document Number

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