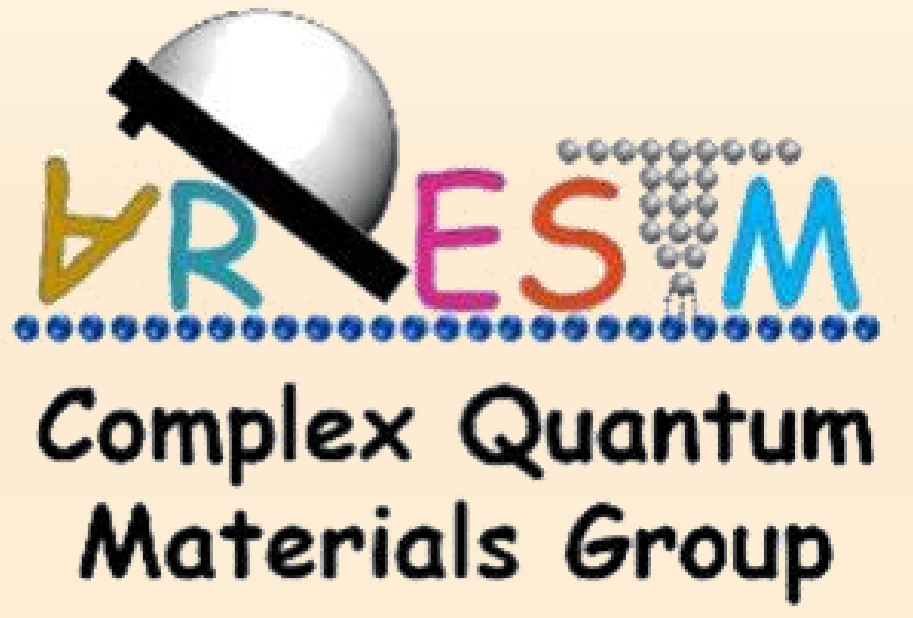
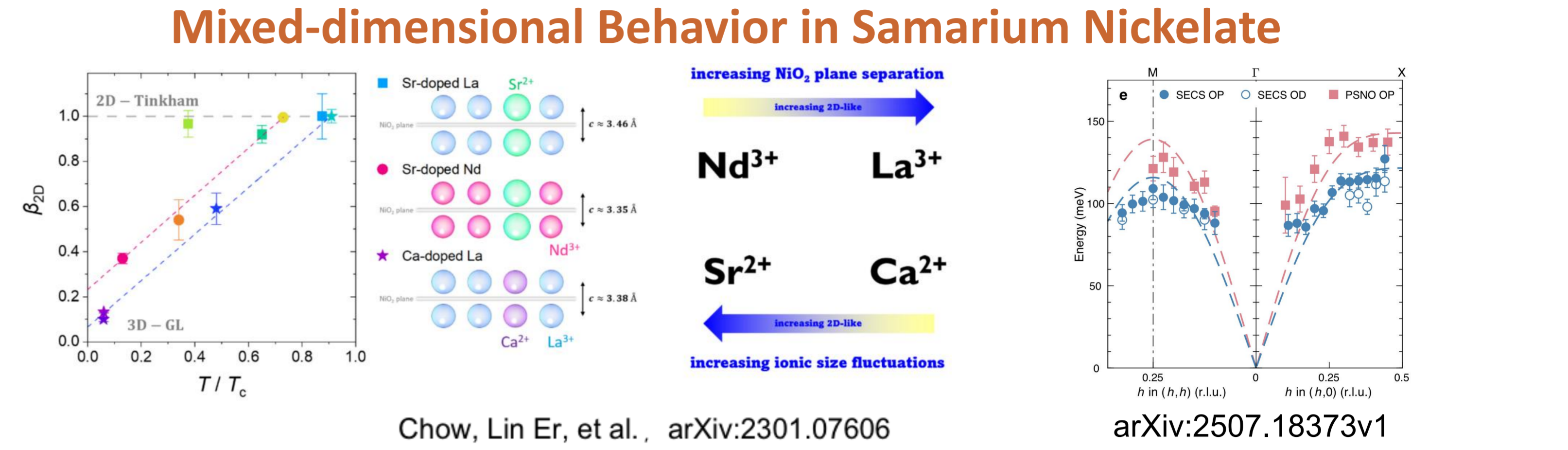
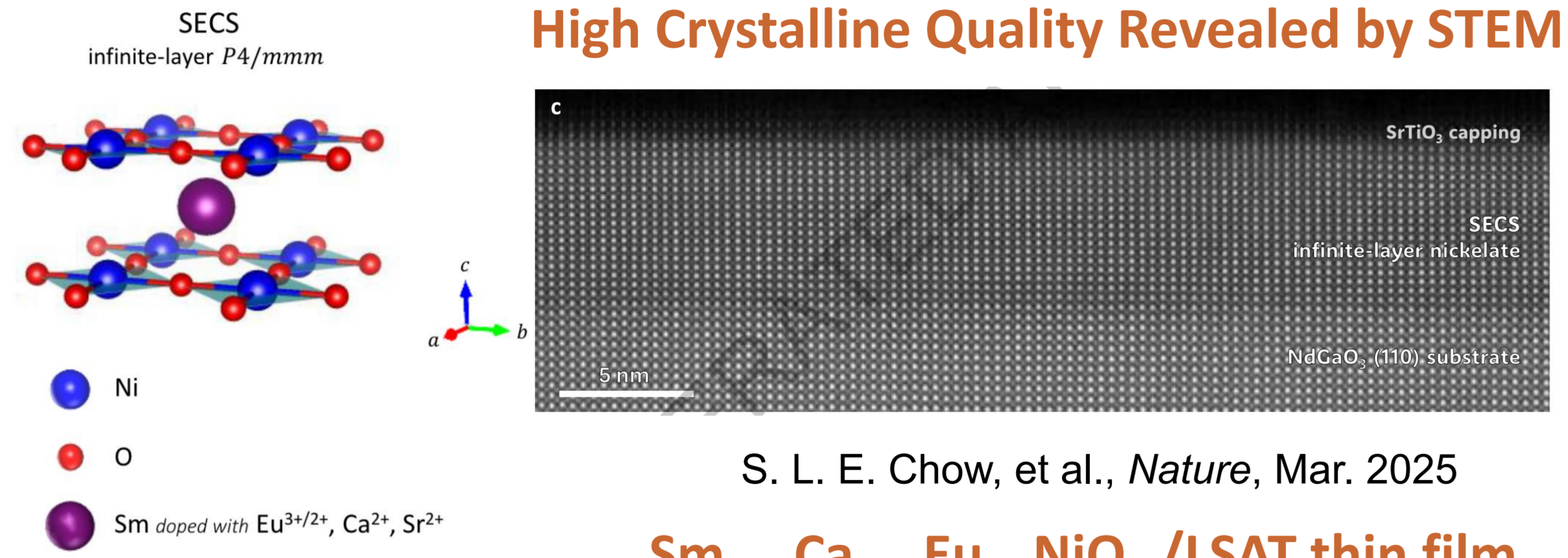


Absence of a Lifshitz Transition and Enhanced Three-Dimensional Electronic Structure in Superconducting $\text{Sm}_{0.75}\text{Eu}_{0.2}\text{Ca}_{0.05}\text{NiO}_2$

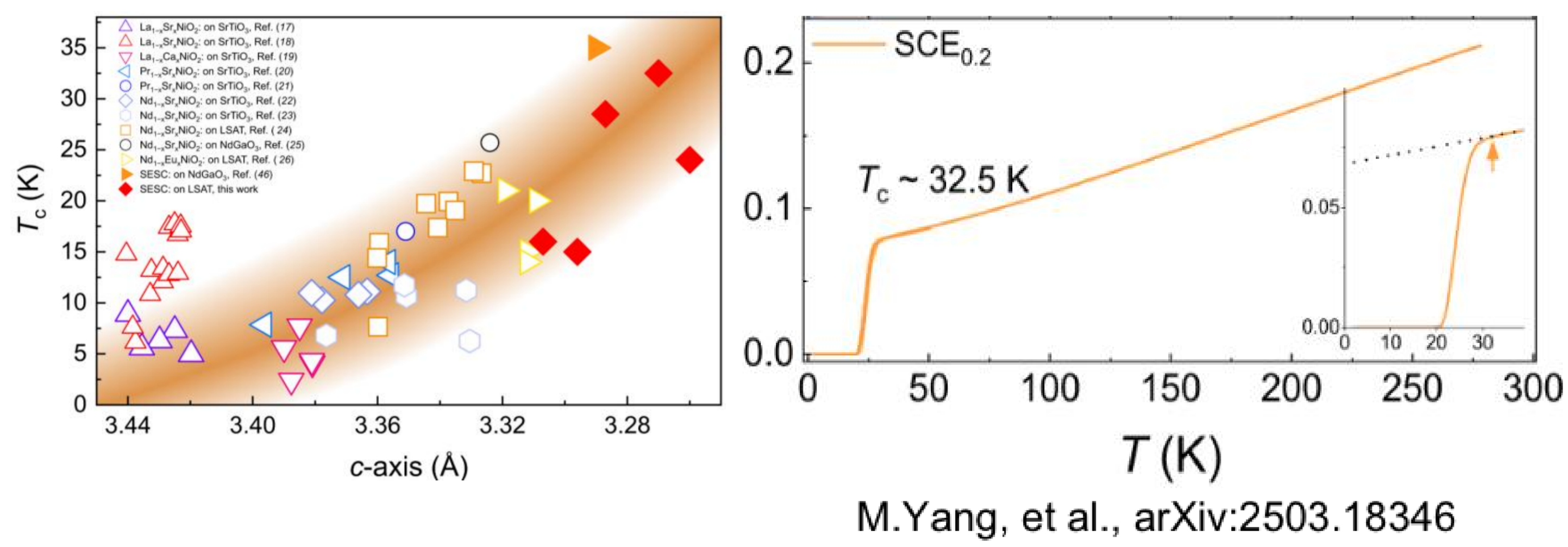
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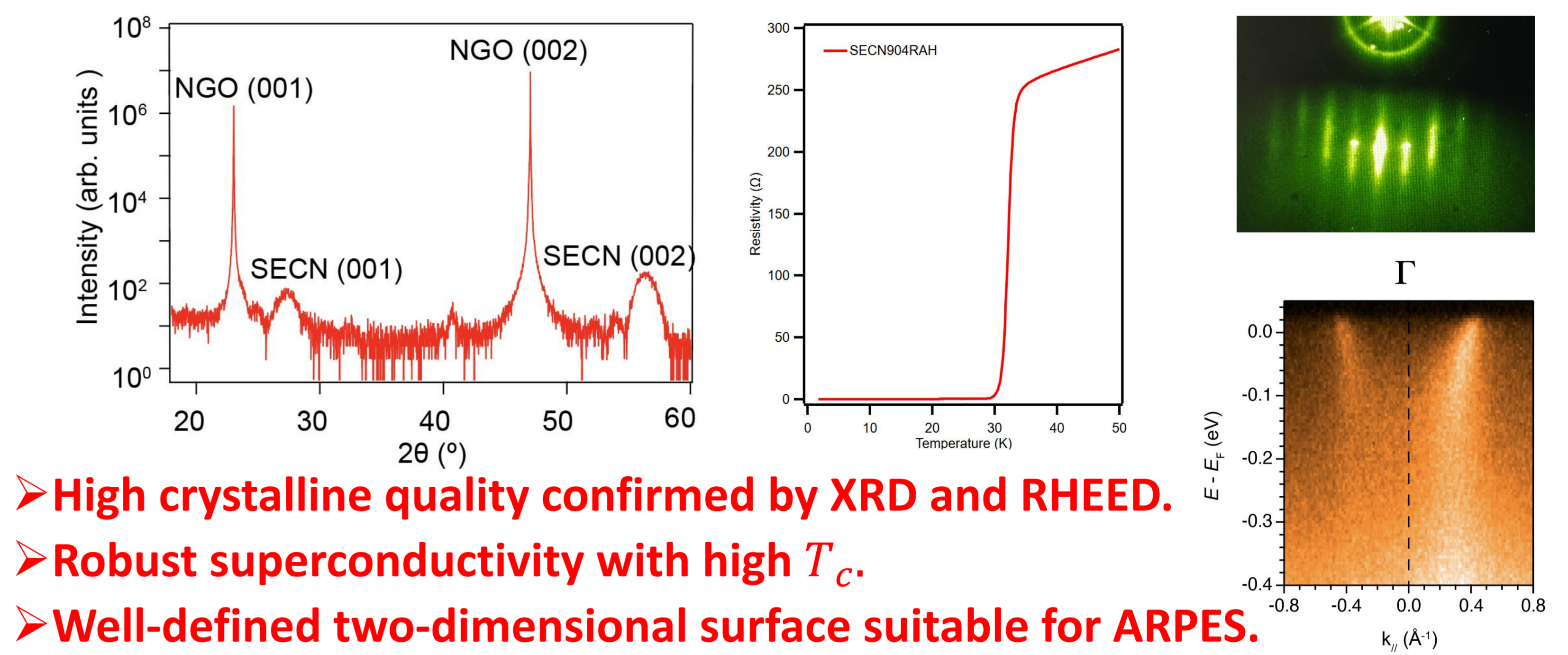
Background: Record-High T_c in Infinite-Layer Nickelate Superconductors



$\text{Sm}_{0.75}\text{Ca}_{0.05}\text{Eu}_{0.2}\text{NiO}_2$ /LSAT thin film



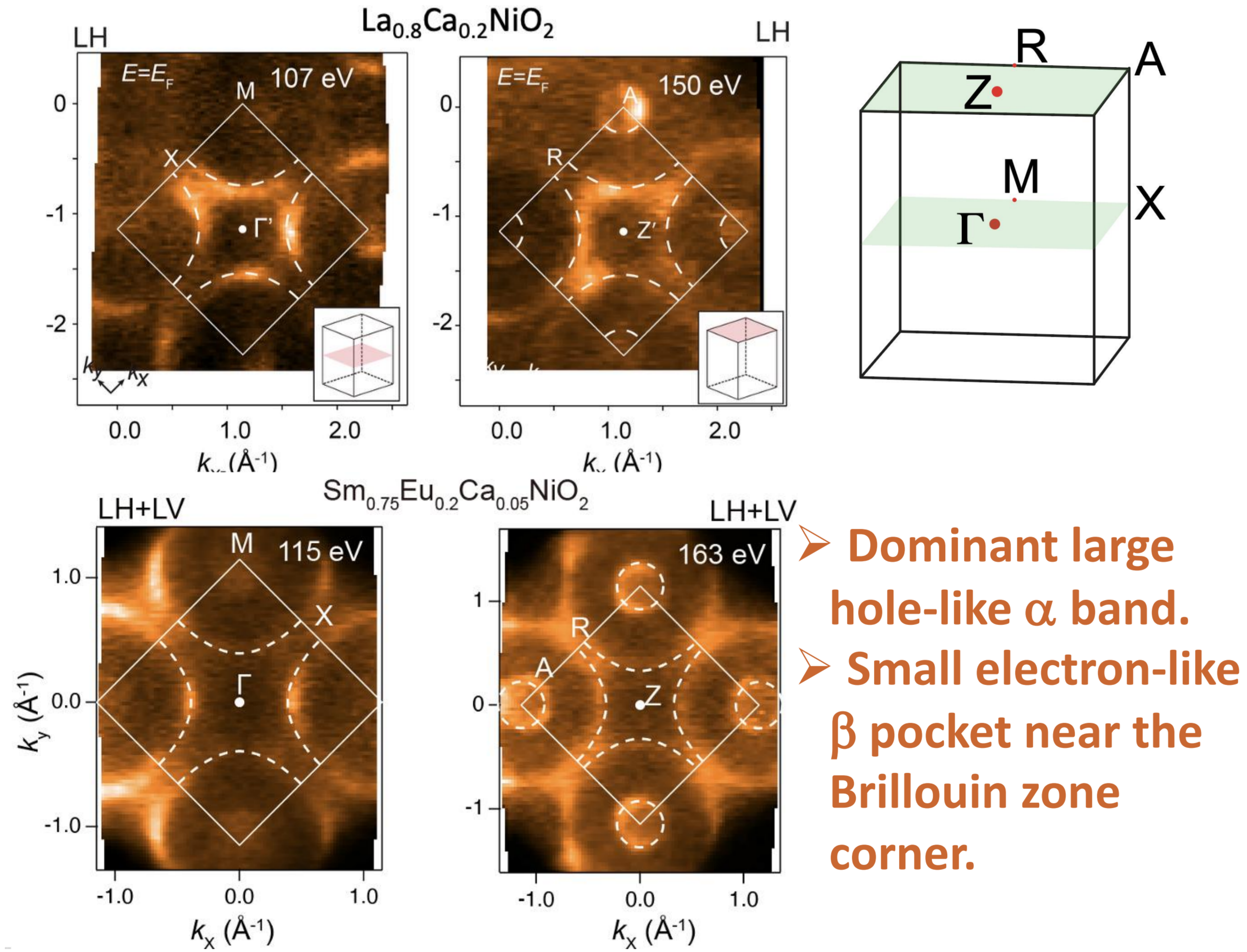
- Does the record-high T_c originate from enhanced interlayer coupling?
- Is the Fermi-surface topology driven closer to a Lifshitz transition



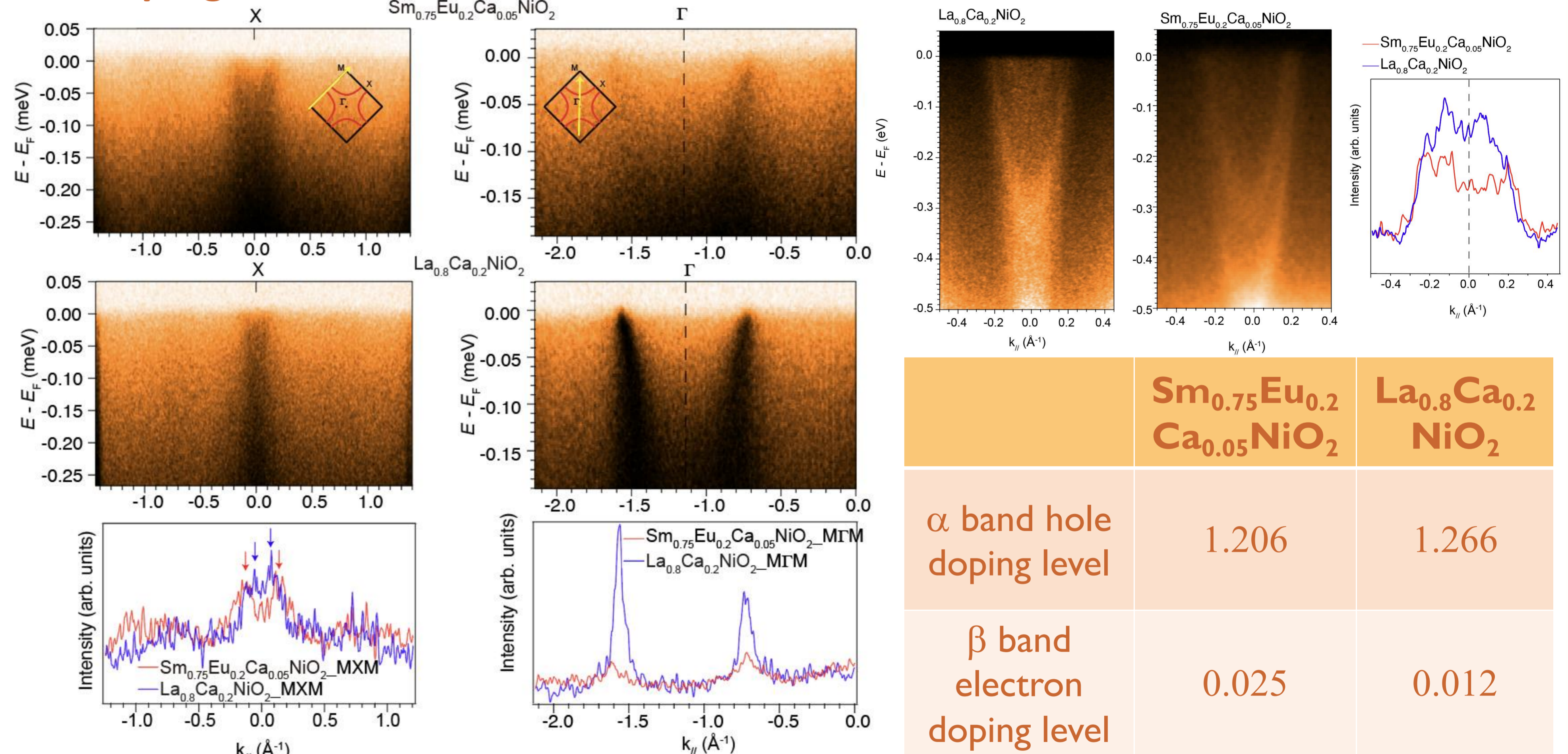
- Record-high T_c above 30 K at ambient pressure.
- First non-copper oxide with zero resistance above 30 K.
- High crystalline quality with negligible RP-type defects.

Experiment Results

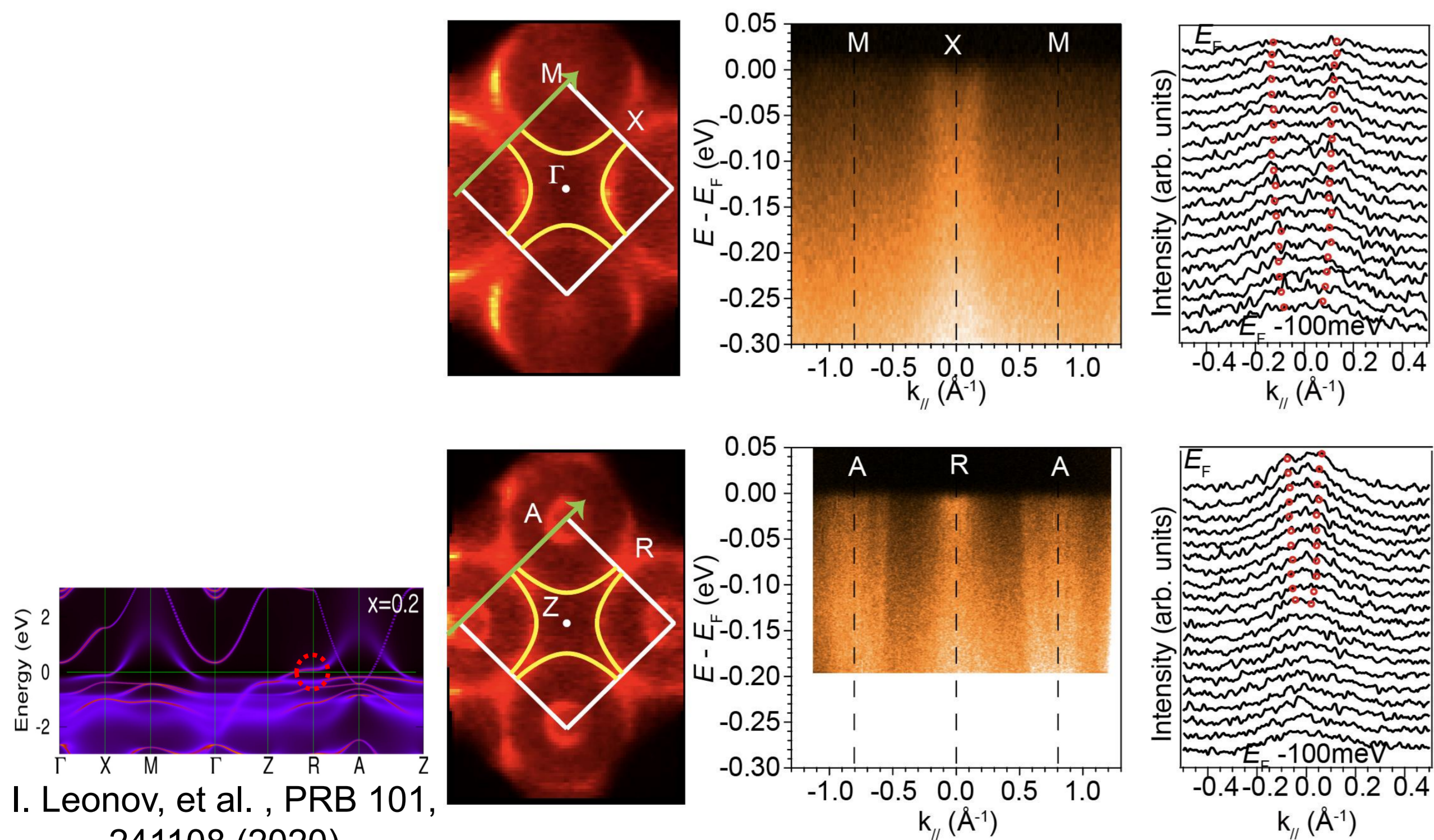
1. Basic electronic structure



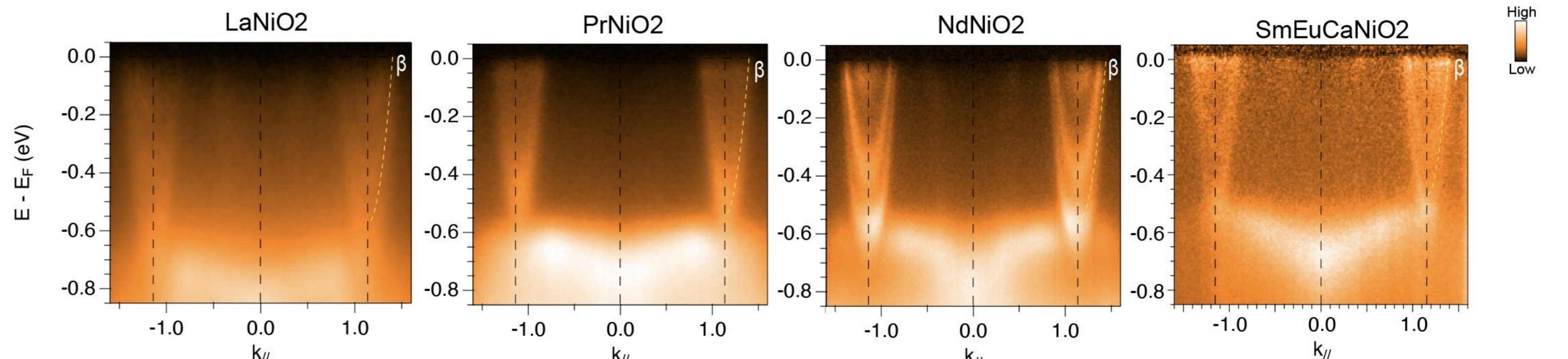
2. Doping level



3. No Lifshitz transition in $\text{Sm}_{0.75}\text{Eu}_{0.2}\text{Ca}_{0.05}\text{NiO}_2$ films



4. Comparison of three-dimensional nickel-based compositions



Conclusion

- Superconducting thin films and high-quality dispersion.
- No evidence of a Lifshitz transition is observed in $\text{Sm}_{0.75}\text{Eu}_{0.2}\text{Ca}_{0.05}\text{NiO}_2$.
- Superconducting gap measurement is in progress.

- At the saddle point along A-R-A direction, the α band retains its electron-like character.