

Can Heavy-Element Molecules Probe *r*-process Nucleosynthesis?

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Motivation

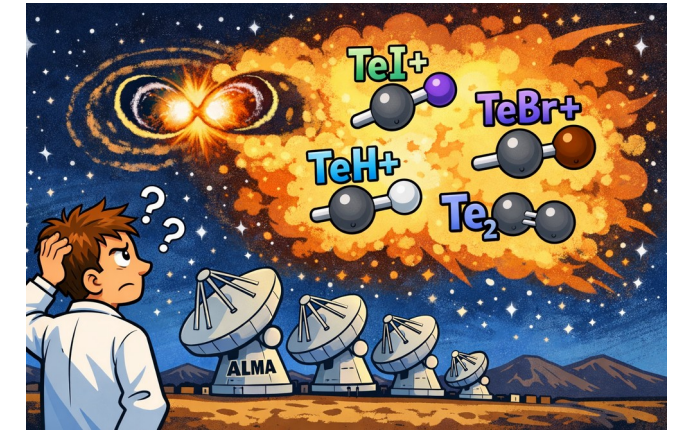
- BNS mergers are major sites of *r*-process nucleosynthesis.
- Can **heavy elements form molecules** and produce observable signatures?

Method

- **Tellurium** as our first case study.
- BNS trajectories → chemical network → molecular distribution → rotational emission

Result

- Te-bearing molecules preferentially form in **slow, dense, Te-rich ejecta**.
- A framework to predict rotational emission and evaluate radio detectability.



TeI (tellurium monoiodide) traces **dense, Te-rich ejecta**

