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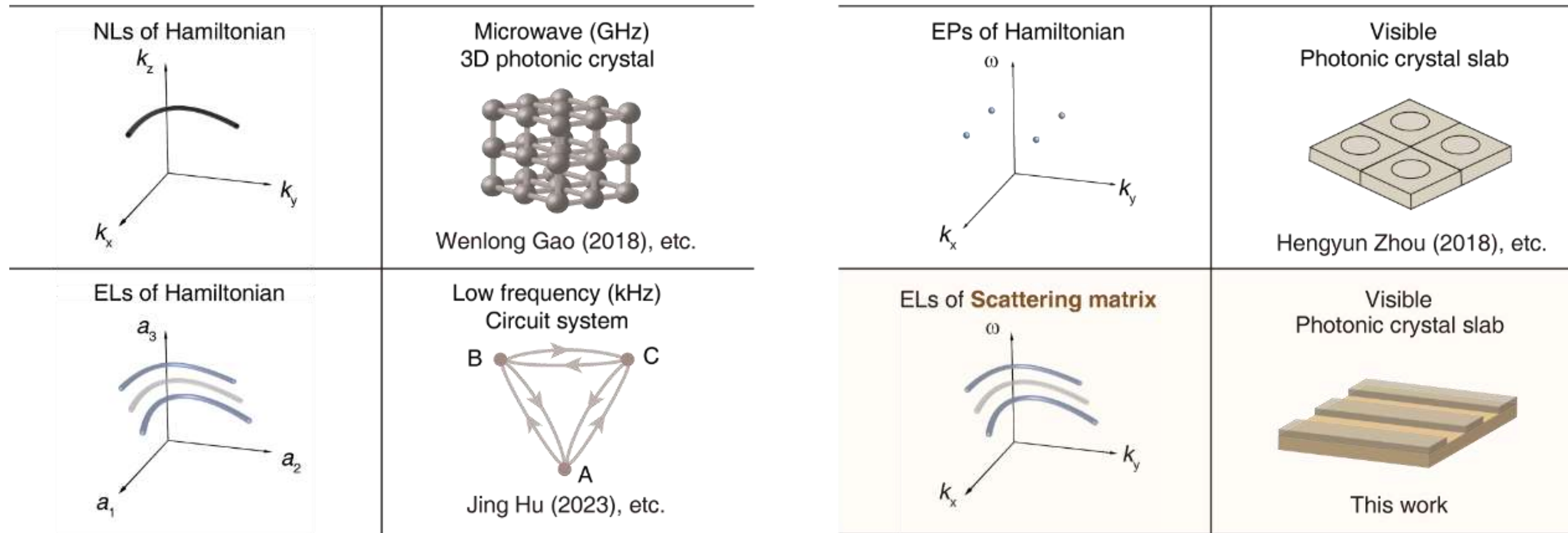
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Nodal and Exceptional Lines Observations Across Frequency Regimes



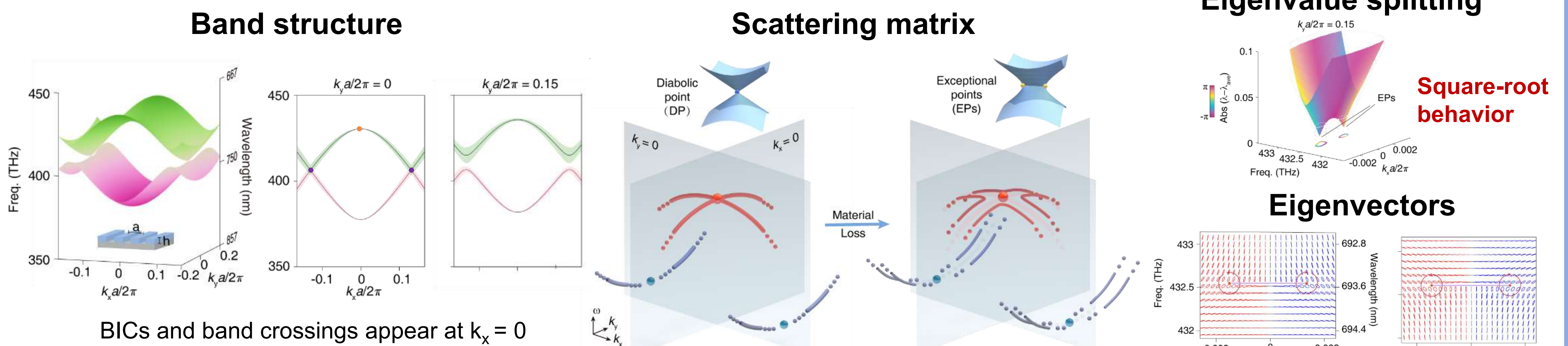
A paradigm shift

Hamiltonian

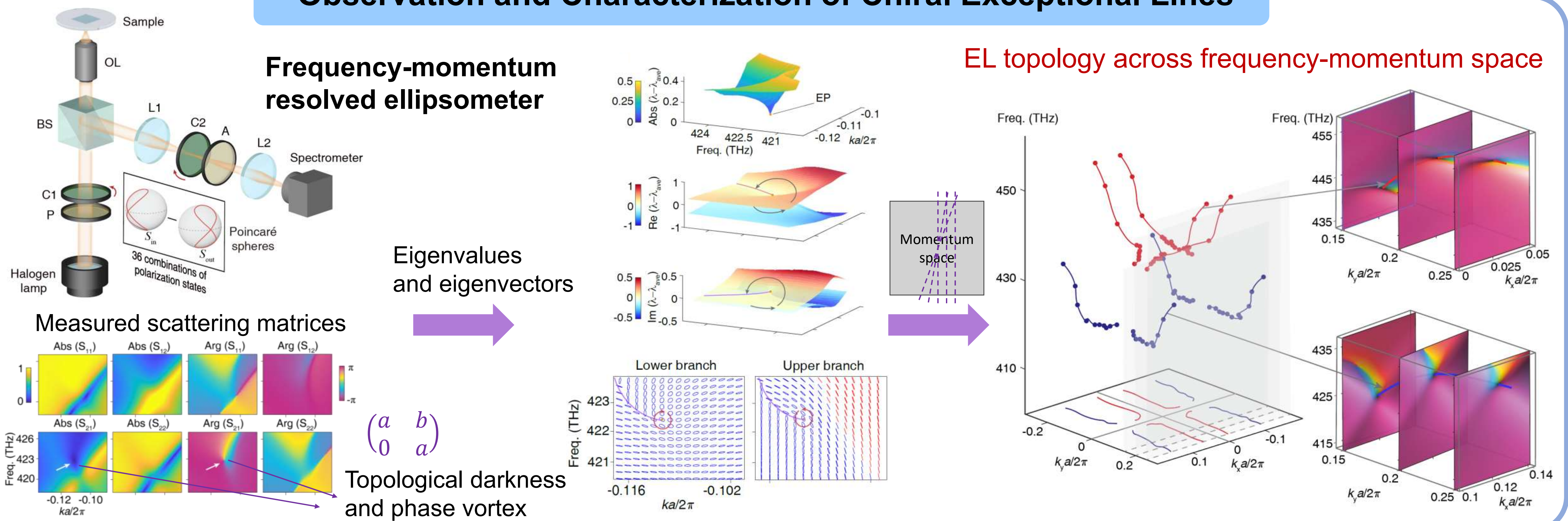
$$S(\omega, \mathbf{k}_{\parallel}) = \begin{pmatrix} r_{pp} & r_{ps} \\ r_{sp} & r_{ss} \end{pmatrix}$$

- Naturally form a 3D parameter space (ω - k_x - k_y)
- Avoid complex structures or controls

Chiral exceptional lines in scattering matrices



Observation and Characterization of Chiral Exceptional Lines



Conclusion

1. The first observation of chiral exceptional lines in the visible regime.
2. Revealing ELs' key topological features, including self-intersecting Riemann surfaces, phase vortices, and polarization half-vortices.
3. Direction-tolerant and bandwidth-covering ELs enables robust sensing across measurement configurations and spectral ranges.

Reference

Zhao J, Wang X, Liu W, et al.
 "Exploring Chiral Exceptional Lines in the Visible Regime."
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