Going to the other side

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Abstract:

Inspired by Eugene Wigner's reflections on the 'unreasonable effectiveness of mathematics in the natural sciences,' this talk is about the surprising and pervasive role of a peculiar phenomenon that, a priori, seemed to have no reason to exist. Yet, it emerges across many different areas of mathematics and theoretical physics, including:

- the Kazhdan-Lusztig correspondence,
- quantum invariants of 3-manifolds,
- the study of 2d (0,2) boundary conditions in 3d N=2 theories,
- resurgent analysis.

Although each of these fields approaches the phenomenon from a different perspective, the results align in striking and unexpected ways.