

# **The Emergent Euclidean Dynamical Symmetry in Nuclear Shape Phase Transitions**

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## **Abstract**

Based on the boson realization of the Euclidean algebras, it is shown that the five-dimensional Euclidean dynamical symmetry may emerge at the triple point of the shape phase diagram of the interacting boson model. With a nonlinear projection, it is further revealed that the Euclidean dynamical symmetry may hide in the whole critical region of the spherical–axial deformed shape phase transitions, which thus provides a unified symmetry–based interpretation of the critical phenomena in the region.