

Abstract Submitted  
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**Embedded SIC-POVMs**<sup>1</sup> HOAN BUI DANG, Perimeter Institute for Theoretical Physics and University of Waterloo, KATE BLANCHFIELD, INGEMAR BENGTTSSON, Stockholms University, MARCUS APPLEBY, Perimeter Institute for Theoretical Physics — Symmetric informationally complete (SIC) sets of quantum states have applications in foundational studies of quantum mechanics, quantum tomography, quantum communication, quantum cryptography, and classical signal processing. However, their existence in every dimension has not been proven, and no general construction has been known. During our study of linear dependencies in Weyl-Heisenberg orbits [1], we discovered 2-dimensional SICs embedded in a 6-dimensional Hilbert space. This offers a robust construction for 2-dimensional SICs, and may potentially impact the SIC existence problem. In this talk, I will explain how this construction works, and present numerical results for some other dimensions. References: [1] Hoan Bui Dang, Kate Blanchfield, Ingemar Bengtsson, D. M. Appleby, “Linear Dependencies in Weyl-Heisenberg Orbits,” arXiv:1211.0215.

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