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**Anatomy of Topological Surface States: Exact Solutions from Destructive Interference on Frustrated Lattices** FLORE KUNST, Stockholm University, MAXIMILIAN TRESCHER, Free University Berlin, EMIL BERGHOLTZ, Stockholm University — The hallmark of topological phases is their robust surface whose intriguing properties - such as the one-way transport on the chiral edge of a Chern insulator and the sudden disappearance of surface states forming open Fermi arcs on the surface of Weyl semimetals - are impossible to realize on the surface alone. Yet, despite the glaring simplicity of non-interacting topological bulk Hamiltonians and their concomitant energy spectrum, the detailed study of the corresponding surface states has essentially been restricted to numerical simulation. In this presentation, I will show that exact analytical solutions of both topological and trivial surface states can be obtained for generic tight-binding models on a large class of geometrically frustrated lattices in any dimension. I illustrate our findings by introducing two simple examples. Firstly, I will derive exact chiral Chern insulator edge states on the Kagomé lattice. Next, I expand the method by one dimension, which leads to the derivation of the Fermi arc solution for a Weyl semimetal model.

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