

## **The Craighero-Gattazzo surface is simply-connected**

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### **Abstract:**

We show that the Craighero-Gattazzo surface, the minimal resolution of an explicit complex quintic surface with four elliptic singularities, is simply-connected. This was conjectured by Dolgachev and Werner, who proved that its fundamental group has a trivial profinite completion. The Craighero-Gattazzo surface is the only explicit example of a smooth simply-connected complex surface of geometric genus zero with ample canonical class. We hope that our method will find other applications: to prove a topological fact about a complex surface, we use an algebraic reduction mod  $p$  technique and deformation theory. Joint work with Julie Rana and Giancarlo Urzua.