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**WORKSHOP AND SCHOOL ON TOPOLOGICAL ASPECTS  
OF CONDENSED MATTER PHYSICS  
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## **TOPOLOGICAL FIELD THEORY FOR p-WAVE SUPERCONDUCTORS**

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### Abstract:

In my talk I will first give a general background to topological field theories for superconductors and then present recent results on a proposed topological field theory for a spinless 2D chiral superconductor that contains fundamental Majorana fields. Due to a fermionic gauge symmetry, the Majorana modes survive as dynamical degrees of freedom only at magnetic vortex cores, and on edges. These modes have the topological properties pertinent to a p-wave superconductor including the non-abelian braiding statistics. I also briefly discuss the connection to the Moore-Read Pfaffian quantum Hall state, and extensions to the spin-ful case and to 3D topological superconductors.