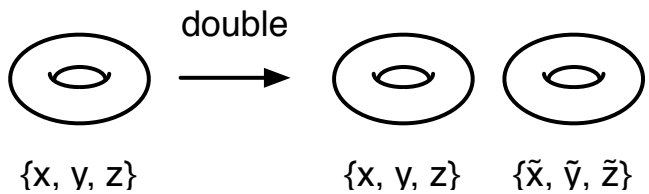
D-branes and doubled geometry

Cecilia Albertsson (YITP), with Tetsuji Kimura (YITP) & Ronald Reid-Edwards (DESY), arXiv:0806.1783 [hep-th]

- The 2-dim nonlinear sigma model is well-defined on non-geometric spaces with transition functions in the T-duality group O(d,d; Z) (T-folds)
- Hull ['04, '06, '08] introduced a geometric description of such non-geometric spaces, called "doubled geometry":
  - *Double the degrees of freedom* to include dual coordinates
  - Define a *"doubled" nonlinear sigma model* on the doubled geometry
  - Impose a *self-duality constraint* to halve the degrees of freedom
  - Introduce a *polarisation* to project to physical target space (eliminate dual coords)
- We derive the boundary conditions of the doubled sigma model and solve them for a doubled flat three-torus with three-form H-flux



- We derive the spectrum of D-branes allowed in this doubled geometry and show that they project to well-defined D-branes in the physical target space