

# Relative Gromov-Witten theory and symplectic 4-manifolds

MICHAEL USHER

*Princeton University*

In relative Gromov-Witten theory, one counts pseudoholomorphic curves either with prescribed asymptotic behavior or with prescribed tangencies to a symplectic hypersurface. I will discuss how relative Gromov-Witten theory can be used to shed light on two natural questions about the topology of symplectic 4-manifolds:

1. Under what circumstances is the symplectic sum of two symplectic 4-manifolds minimal?
2. How is the monodromy of a Lefschetz fibration on a 4-manifold related to the topology of the total space?