Department of Mathematics, BGU

# Colloquium

**On** *Tuesday, November ,2 2021*

**At** *14:30 – 15:30*

**In** *Math 101-*

Cy Maor (Hebrew University)

will talk about

## Riemannian metrics on dffieomorphism groups — the good, the bad, and the unknown

Abstract: In finite dimensional Riemannian geometry, everything behaves nicely — the Riemannian metric induces a distance function, geodesics exist (at least for some time), and so on. In infinite dimensional Riemannian geometry, however, chaos reigns. In this talk I will focus on dffieomorphism groups, and on a particularly important hierarchy of Riemannian metrics on them: right-invariant Sobolev metrics. These arise in many dffierent contexts, from purely mathematical ones, to applications in hydrodynamics and imaging. I will give a brief introduction to these metrics, why we care about them, and what we know (and don't know) about their properties. Parts of the talk will be based on joint works with Bob Jerrard and Martin Bauer.