

The Hebrew University of Jerusalem  
האוניברסיטה העברית בירושלים  
מכון איינשטיין למתמטיקה  
Einstein Institute of Mathematics



# Wolf Prize Lecture

**Prof. Richard Schoen**  
(*UC Irvine*)

will speak on:

**The Geometry of Eigenvalue Extremal Problems**

**Thursday, June 8th, 11-12 noon,**  
**Levin 8 Auditorium (*please note unusual location*)**

**Abstract:**

When we choose a metric on a manifold we determine the spectrum of the Laplace operator. Thus an eigenvalue may be considered as a functional on the space of metrics. For example the first eigenvalue would be the fundamental vibrational frequency. In some cases the normalized eigenvalues are bounded independent of the metric. In such cases it makes sense to attempt to find critical points in the space of metrics. In this talk we will survey two cases in which progress has been made focusing primarily on the case of surfaces with boundary. We will describe the geometric structure of the critical metrics which turn out to be the induced metrics on certain special classes of minimal (mean curvature zero) surfaces in spheres and euclidean balls. The eigenvalue extremal problem is thus related to other questions arising in the theory of minimal surfaces.

**Givat Ram, Edmond J. Safra Campus**