1137-37-109 **Svetlana Jitomirskaya** and **Wencai Liu*** (liuwencai1226@gmail.com), Rowland Hall 410P, IRVINE, CA 92697-3875, and **Darren Ong**. *Sharp spectral transition for eigenvalues embedded into essential spectrum of Laplacian on Riemannian manifold or Schrödinger operator.*

The first part of the talk (joint work with S.Jitomirskaya) is to study the eigenvalues of the Laplacian embedded in the essential spectrum on manifolds. Kumura proved that there are no eigenvalues embedded in the essential spectrum $\sigma_{ess}(-\Delta) = [\frac{1}{4}(n-1)^2, \infty)$ of Laplacians if the radial curvature $K_{\rm rad} = -1 + o(r^{-1})$. Given any finite (countable) positive energies $\{\lambda_n\} \in [\frac{K_0}{4}(n-1)^2, \infty)$, we construct Riemannian manifolds with $K_{\rm rad} + K_0 = O(r^{-1})$ with $K_0 \geq 0$ ($K_{\rm rad} + K_0 = \frac{C(r)}{r}$, where $C(r) \to \infty$ arbitrarily slowly) such that the eigenvalues $\{\lambda_n\}$ are embedded in the essential spectrum.

The second part of the talk (joint work with D.Ong) is to study equation $Hu = -u'' + (V(x) + V_0(x))u = Eu$, where $V_0(x)$ is 1-periodic and $V(x)$ is a perturbation. Given any finite (countable) set of non-resonant points $\{E_j\}$ in any spectral band of H_0, we construct smooth functions $V(x) = \frac{O(1)}{1+|x|}$ ($|V(x)| \leq \frac{h(x)}{1+|x|}$, where $h(x) \to \infty$ arbitrarily slow)such that $H = H_0 + V$ has eigenvalues $\{E_j\}$. We also show that there is no eigenvalue of $H = H_0 + V$ embedded in the spectral bands if $V(x) = \frac{o(1)}{1+|x|}$. (Received January 30, 2018)