Mahesh Sunkula* (sunkulamahesh@gmail.com), 1260 West Blaine Street, Apt 6, Riverside, CA 92507. Geometric quantization of classical mechanical systems with focus-focus singularities.

We use Geometric quantization to construct quantum Hilbert space of classical mechanical systems with singularities. Our primary focus is on systems which have a type of singularity called focus-focus singularity. To construct the quantum theory using geometric quantization procedure one needs to compute sheaf cohomologies. We use a de Rham like resolution to compute the cohomology groups. We first show that the resolution that we defined is a fine resolution and compute the cohomology groups on an open neighborhood of the singular fiber. (Received August 27, 2019)