Fabricating Micro-Optomechanical Resonators Using High-Stress Si$_3$N$_4$ BRIAN PEPPER, UC Santa Barbara, PETRO SONIN, University of Leiden, DIRK BOUWMEESTER, UC Santa Barbara / University of Leiden — Optomechanical systems have been highly researched as a platform for testing macroscopic quantum effects and quantum decoherence. However, the required optical and mechanical properties are difficult to achieve. Increasing the tensile stress of a device is known to correlate with higher mechanical frequency and quality factor. We discuss fabrication of monolithic optomechanical devices using dielectric mirrors and high-stress stoichiometric Si$_3$N$_4$. We also present preliminary data on their mechanical and optical properties.