Vulnerable plaque rupture is the single largest cause of death in the U.S., accounting for 60% of all cardiovascular deaths. This image shows the initial discovery by micro-CT detection of cellular level microcalcifications (circled) in the fibrous cap of a vulnerable plaque. Numerous calcified macrophages (arrows) are seen in the lipid lesion (dark lunar region) beneath the fibrous cap, and two macrocalcifications (150 µm) are seen at the shoulder of the lipid lesion. Neither of the latter are life threatening, whereas the tiny (15 µm) circled cellular level microcalcifications produce a near doubling of the local circumferential stress at the poles of the tiny inclusion that can lead to interfacial debonding and initiate cap rupture. See Vengrenyuk et al. PNAS vol.103, page 14678, 2006. Yuliya Vengrenyuk is a Ph.D. student mentored by Professor Weinbaum.