# Highlights

* Osteogenesis Imperfecta (OI) trabecular bone is more mineralized compared to healthy
* OI trabecular bone presents lower bone volume fraction and higher heterogeneity
* OI trabecular architecture is not degraded for BV/TV and fabric similar to healthy
* HR-pQCT-based homogenized FE can be used for OI trabecular bone stiffness analysis
* Coarser scan resolution (HR-pQCT vs µCT) leads to lower stiffness constants