Reproduction of partially molten system by gel

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In the partially molten region of the upper mantle the melt fraction is estimated to be small (below 10%). The morphology of the melt phase in such a low melt fraction has large effect on transport properties as well as elastic wave velocities. The morphology is controlled by the surface energy between solid and melt phase in the partially molten system. We report morphology of the highly deformable soft gel and coexisting liquid under compaction. The gel deforms into polyhedron due to its high deformability, and the fluid phase exists at edge and corner regions, and the morphology of the mixture system is similar to that under the interfacial tension observed in high-temperature and high-pressure experiment.