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Covalent Fusion of layered Incompatible Gels in Immiscible Solvents SANTIDAN BISWAS, AWANEESH SINGH, Univ of Pittsburgh, KRZYSZTOF MATYJASZEWSKI, Carnegie Mellon University, ANNA C. BALAZS, Univ of Pittsburgh — We carry out dissipative particle dynamics (DPD) simulations to model a two layered stackable gel where the gels are incompatible and are present in immiscible solvent. The bottom layer of the gel is created first and then a solution of new initiators, monomers and cross-linkers is introduced on top of it. These components then undergo polymerization and form the second gel layer. We study all possible combinations of free radical polymerization (FRP) and atom transfer radical polymerization (ATRP) mechanisms with the two layers of the gel. For example, the bottom layer gel is created via ATRP, whereas the top layer gel follows FRP. Our focus is to do a systematic study of all these combinations and find out the factors responsible for combining two incompatible gels in immiscible solvents.

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