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Programmable concatenation of conductively linked gold nanorods using molecular assembly and femtosecond irradiation JAKE FONTANA, STEVE FLOM, JAWAD NACIRI, BANAHALLI RATNA, Naval Research Laboratory — The ability to tune the resonant frequency in plasmonic nanostructures is fundamental to developing novel optical properties and ensuing materials. Recent theoretical insights show that the plasmon resonance can be exquisitely controlled through the conductive concatenation of plasmonic nanoparticles. Furthermore these charge transfer systems may mimic complex and hard to build nanostructures[1]. Here we experimentally demonstrate a directed molecular assembly approach to controllably concatenate gold nanorods end to end into discrete linear structures, bridged with gold nanojunctions, using femtosecond laser light. By utilizing high throughput and nanometer resolution this approach offers a pragmatic assembly strategy for charge transfer plasmonic systems. [1] J. Fontana and B. R. Ratna, Applied Physics Letters **105** (2014)

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