

UNIVERSITY OF RHODE ISLAND
Department of Chemistry
VIRTUAL SEMINAR

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***“Organocatalytic Ring-Opening
Polymerization (ROP) of Cyclic
Lactones”***

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Organocatalytic Ring-Opening Polymerization (ROP) of Cyclic Lactones

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Organocatalytic Ring-Opening Polymerization (ROP) of cyclic lactones has come a long way with the development of organo-catalysts. A new set of biodegradable polymers were synthesized via the organocatalytic ROP of thionolactones. The synthesized poly(thionolactones) exhibited interesting material properties compared to their corresponding poly(lactones). The thionoester moieties in the polymer backbone serve as a chemical handle in the oxidative crosslinking process. The resulting crosslinked polymer is an opaque, flexible, and porous solid with remarkable material properties. The crosslinked density of the polymer can be altered by varying the amount of S atoms in the polymer backbone, via thionolactone/lactone copolymerizations or modulating the ring size of the thionolactone. The S atoms in the crosslinked polymer network facilitate the extraction of Au^{3+} from an aqueous solution, demonstrating the crosslinked polymer's potential to use as a water filter for a host of inorganic materials.