In this paper we further investigate acoustic energy as a tool to enhance the recovery rate of a self healing material. Time reversal is the method used for the focusing of acoustic energy at a recovering location. Our recent tests, which have produced promising results, included applying acoustic time reversal in an iterative fashion in order to focus and amplify a stress-wave at a defect within a solid rod. Two types of rods were used for testing; i.) a solid steel rod (non-dispersive) and ii.) a brass rod filled with a fully cured two-part epoxy (dispersive). The curing of a two-part epoxy is treated as being analogous to the curing of a self healing material. We have continued to look at the effects of acoustic energy on the curing of the epoxy. It was found that the curing rate of the epoxy was accelerated with the introduction of acoustic energy.

Many times it is taken for granted that machines and structures will be accessible for repair in the event that damage occurs. When it comes to space structures, however, we are not afforded the convenience of reasonably easy access to repair damages. Damage can occur quite frequently as a result of collisions with mirco-meteroids or space debris. Materials with the abilities to heal themselves are very desirable for this application.

There has been a large interest in self healing materials recently. Some of this work applies biological concepts to the problem \cite{Blaysik2010}. A lot of the research performed on accelerating the recovery rate has looked at the problem from a materials level. Heating, cooling, and introducing ultra-violet light are other methods that have been used to speed the healing of the material.