

# **Emily Longwith, Biological Engineering**

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## **A novel filler for increased strength of polymer based composites for dental restorations**

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Current dental composites consist of a polymer resin and micro-sized glass particles which are used as a filler material. These particles help reinforce the composite during the compressive loads created by the chewing motion, but do not reinforce the composite against the tensile loads created by the same chewing motion. A novel biocompatible nano-sized filler, which will reinforce against both compressive and tensile loads, has been incorporated into the dental resin and has led to an increased biaxial flexural strength when compared to data provided by current publications.