

## Detection of Micro-Fossils using Laser-Stimulated Fluorescence

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**Abstract:** While novice and professional alike thrill at the discovery of giant prehistoric bones, the fact remains that the paleontology community relies heavily on micro-fossils to illuminate the true diversity of ancient fauna. Screen washing sediments or collecting ant hills has been the staple recovery method for more than 100 years. In order to find these microscopic treasures, laborious hours are spent hand sorting under the microscope. This technique requires rare individuals with the determination, patience and skill to pick out the interesting specimens from literally millions of rock fragments. This investigation demonstrates that micro-fossils can be detected efficiently and automatically by using a laser to stimulate the specimens, causing them to fluoresce. Once “lit up” they can be either sorted by eye or with specialized automated machinery. For the first time, a fully functional automated sorting system will be described and prototype demonstrated.