

## Microbially-Mediated Method for Nanoparticle Formation and Films Thereby

### Disclosure Number

201403337

### Technology Summary

Here we focus the expansion of the surface-capped or surfaced enhance in situ or ex-situ (i.e. post-treatment) application of reagents combined with microbially mediated reproducible, scalable process, to produce any kinds of microbially-produced nanoparticles in terms of skeletal (or zero valent) elements, binary metal sulfides, or quaternary metal selenides combined with any surface treatment either in-situ or ex-situ. We will example them all but intensively on zero valent copper element example. Air stable elemental copper nanoparticles with a bimodal distribution of 70 and 3 nm diameters were biosynthesized using the technique with the in situ addition of various agents. This method substantially enhanced air stability and resistance to oxidation of colloidal NP in aqueous solution and thin films.

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