

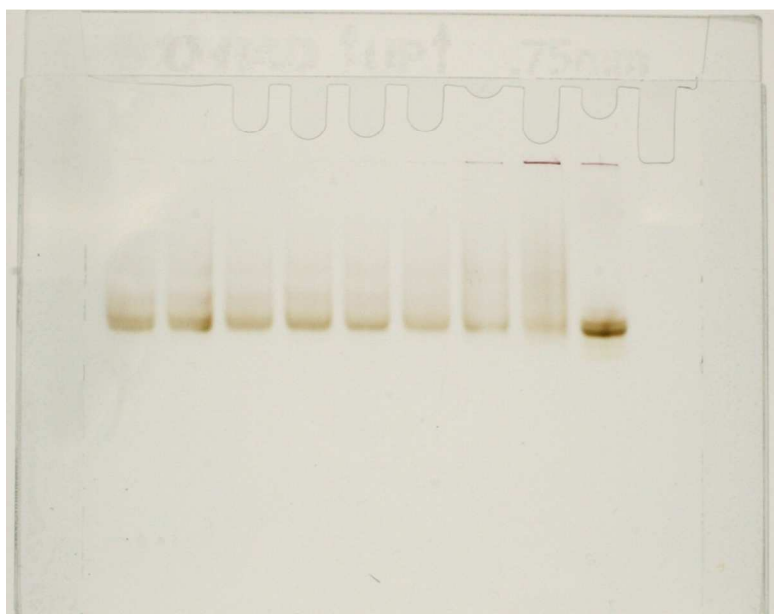
Supporting Information: Superatom Paramagnetism Enables Gold Nanocluster Heating in Applied Radiofrequency Fields

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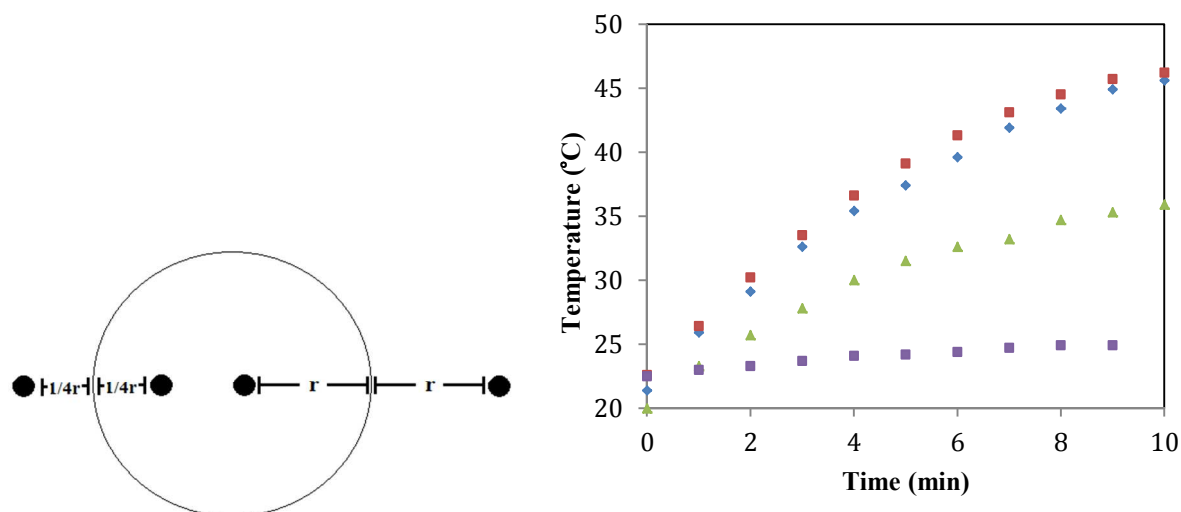
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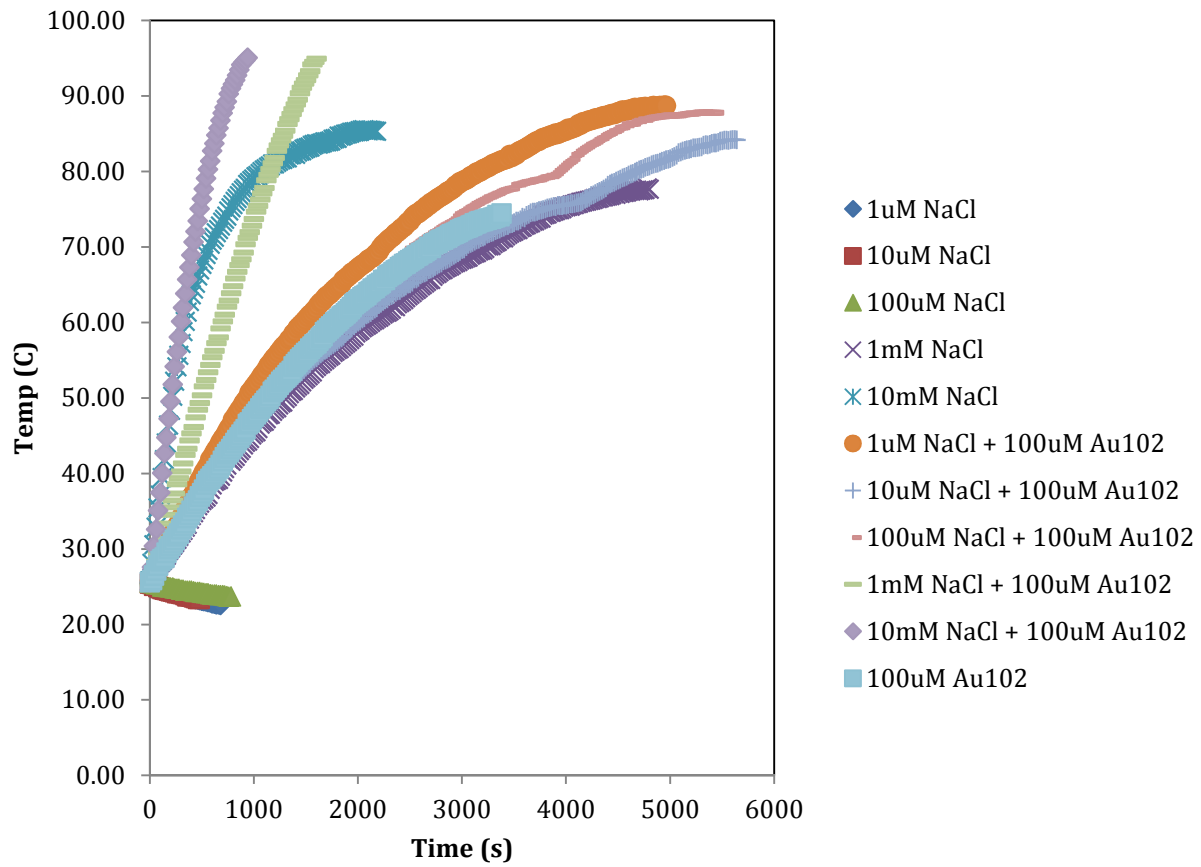
S1: 18% polyacrylamide gel electrophoresis comparing samples oxidized with KMnO₄. From left to right: 0X control, 1X, 2X, 4X, 8X, 16X, 32X, 64X and Au₁₀₂(pMBA)₄₄ standard.

Joule heating is a size dependent phenomena where heat production is inversely related to cluster size due to increased resistance in smaller clusters. Therefore, since we observe larger products in

presence of the $\text{Au}_{102}(\text{pMBA})_{44}$ post oxidation, we can reasonably attribute the increase in heating to the oxidation of the remaining $\text{Au}_{102}(\text{pMBA})_{44}$.



S2: Top-view depiction of sample placement within solenoid and plot of temperature increase upon exposure to 13.56 MHz 50W magnetic field. Red boxes: r interior. Blue diamonds: 1/4r interior. Green triangles: 1/4r exterior. Purple boxes: 1r exterior. The coil's interior appears to have a uniform field, while the field drops off significantly outside.



S3: NaCl solutions compared to their NaCl + Au102 analogs during exposure to a 13.56 MHz 50W magnetic field.