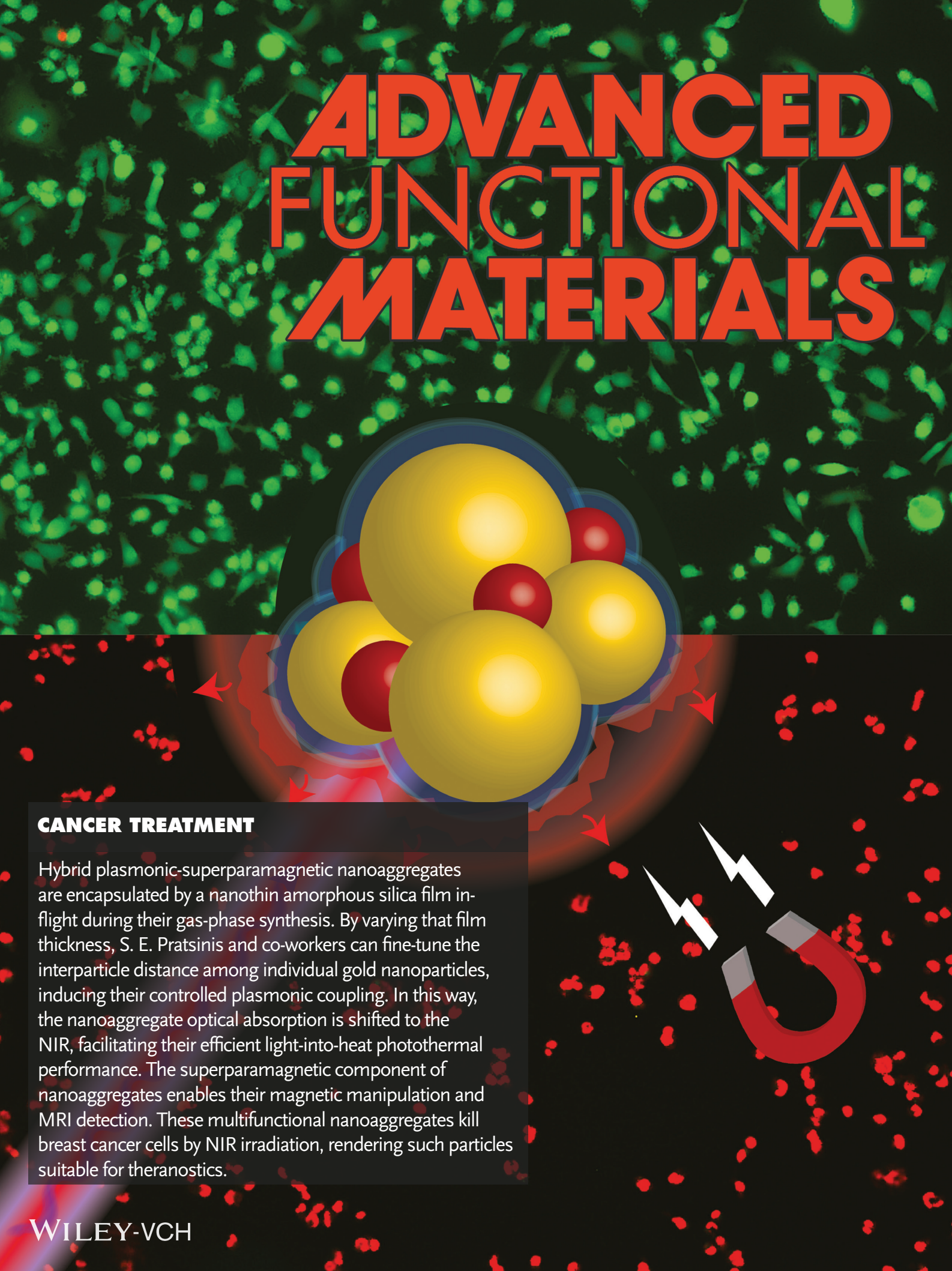
# ADVANCED FUNCTIONAL MATERIALS



## CANCER TREATMENT

Hybrid plasmonic-superparamagnetic nanoaggregates are encapsulated by a nanothin amorphous silica film in-flight during their gas-phase synthesis. By varying that film thickness, S. E. Pratsinis and co-workers can fine-tune the interparticle distance among individual gold nanoparticles, inducing their controlled plasmonic coupling. In this way, the nanoaggregate optical absorption is shifted to the NIR, facilitating their efficient light-into-heat photothermal performance. The superparamagnetic component of nanoaggregates enables their magnetic manipulation and MRI detection. These multifunctional nanoaggregates kill breast cancer cells by NIR irradiation, rendering such particles suitable for theranostics.

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