



Proof of Concept Grant

ERC Funding to develop MRI with single-atom resolution

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The European Research Council, in its efforts to help ERC grant-holders to bridge the gap between their research and the earliest stage of a marketable innovation, created the Proof of Concept (PoC) funding scheme for researchers who have already been awarded an ERC grant. Not only does this program help ERC grantees to explore the innovation potential of their research and/or commercialize the results of their ERC-funded research, the program complements the efforts of ICFO's Knowledge and Technology Transfer Unit (KTT), which proactively searches for ways to translate newly generated knowledge into new technologies.

ICFO Prof. Dr. Adrian Bachtold has been awarded a PoC, the eleventh award of this kind for ICFO in the past seven years, for the project titled **Room Temperature Magnetic Resonance**

Force Microscopy (RTMFRM) . The main goal of this project is to use ultra-sensitive nanotube hybrid cantilevers to carry out magnetic resonance force microscopy at room temperature.

Magnetic resonance imaging (MRI) enables three-dimensional images to be created in a non-destructive and safe manner. Mechanical resonators can greatly increase the sensitivity of MRI compared to commercial systems. Considerable effort is being expended to push magnetic resonance imaging down to single atom resolution. This is currently done by applying large-amplitude magnetic pulses at milliKelvin temperatures.. Here, we propose a completely new approach: using ultra-sensitive nanotube hybrid cantilevers to carry out magnetic resonance force microscopy at room temperature. This may open a new route to achieving MRI with single-atom resolution.



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