

Nanomaterials and nanoparticles magnetism

Non-toxic **Fe₇C₃@C superparamagnetic nanoparticles**, have been synthesized for medical and biologic applications.

Our lab also developed a high pressure direct synthesis method of diamond nanoparticles doped by N and/or by Si. With this scientific research, we integrated the [HYPERDIAMOND European project \(H2020\)](#) « The Diamond Revolution in Hyperpolarized MR Imaging - Novel Platform and Nanoparticle Targeted Probe »

The aim of this project is to develop and commercialize new **molecular imaging technologies** with improved sensitivity and a better monitoring during the medical treatment based on NV (Nitrogen Vacancy) centers in nanodiamonds. This technology could reach PET (Positron Emission Tomography) sensitivity using IRM system.

HYPERDIAMOND Projects partners :

- ULM university - Germany (IQO, ITP, IOC, CIM)
- The Hebrew university of Jerusalem - Israel
- Research Fund of the Hadassah Medical Organization - Israel
- Karlsruher Institute of Technology - Germany
- Austrian Institute of Technology - Austria
- LM Van Moppes and Sons SA - Switzerland
- Kanfit and Lapuntul Magnetics - Israel
- Nvis Imaging Technologies GmbH - Germany