

## Marie Skłodowska-Curie PostDoc Positions in Germany

### “Expression of Interest” for hosting Fellows

This template should be used by institutions interested in hosting postdoctoral fellows within the Marie Skłodowska-Curie Individual Fellowship programme. Host institutions should be located in Germany.

#### 1. Valid for the following MSCA-IF Calls<sup>1</sup>:

<input type="checkbox"/> 2018	<input checked="" type="checkbox"/> 2019	<input checked="" type="checkbox"/> 2020
-------------------------------	--	--

#### 2. Interested host institution:

RheinMain University of Applied Sciences,  
Am Brückweg 26, 65428 Rüsselsheim

Name of EU liaison officer (EU-Referent/in), if applicable:

#### 3. Institute/Department:

Institute for Microtechnologies (IMtech)

<https://www.hs-rm.de/de/fachbereiche/ingenieurwissenschaften/profil/studienbereich-physik/imtech-institut-fuer-mikrotechnologien/>

#### 4. Contact person (name and e-mail address):

Prof. Dr. rer. nat. Stefan Kontermann  
Professor for Technical Optics and Photonics

stefan.kontermann@hs-rm.de

---

<sup>1</sup> MSCA Individual Fellowships are selected on the basis of annual calls for proposals. Forthcoming and open calls for proposals can be found on the [Participant Portal](#) of the European Commission under “Funding Opportunities” and “Calls/H2020”.

**5. Project idea/position (scientific requirements, topic, discipline):**

Rough outline of idea/position:

Black silicon -manufactured by femtosecond laser pulse irradiation under sulfuric atmosphere (femto-bSi)- is a material with high absorption in the infrared (IR) wavelength regime. It can replace IR sensitive but expensive germanium in IR-sensor and high-efficiency photovoltaic applications using an intermediate band in the silicon band gap. However femto-bSi suffers from high recombination of electronic charge carriers due to laser induced silicon crystal damage impeding most applications so far.

The main goal of this project to control the electronic properties of femto-bSi by applying passivation layers of aluminum oxide, which leads to very low recombination activity and makes the IR-activity of femto-bSi exploitable. The focus is then on integrating this material in IR-sensor applications. The results of the project will enable to understand and control electronic properties of femtosecond laser sulfur hyperdoped silicon and provide sensor applications of this material.

A possible candidate should have a background in laser physics and photovoltaics. Our laboratories are located at Rüsselsheim, in the Rhein Main area.

The position would be available for a minimum of two years subjected to funding. We will support a possible candidate in the joint application process with the next funding opportunity.

For further information, do not hesitate to contact me (stefan.kontermann@hs-rm.de), if possible please attach CV.

Please tick:

- Life Sciences
- Natural Sciences
- Engineering Sciences
- Social Sciences and Humanities

**6. Deadline<sup>2</sup> for considering interests by postdoctoral applicants:**

3 months before the deadline of the call

---

<sup>2</sup> Please consider that the preparation of a Marie Skłodowska-Curie proposal requires some time. Fellow and supervisor have to agree on a project and training opportunities for the fellow.