

## Registration:

Course fee	EUR plus 19% VAT	Please select
Attendance option <small>*Slang titles as homage to our historical coal mining area Ruhrgebiet called „Ruhrpott“ with its characteristic slang</small>		↓
<b>“Medical Device MRI Safety Specialist”*</b> <b>“Volle Kanne*/Full Tilt”</b> 14/15/16 Mar 2024 (Lectures & MRI hands-on):	1895	
<b>Online</b> 14/15/16 Mar 2024	1515	

Title, First name, Name

Function title

Organisation

Street, Number

City, Zip-code

Telephone, Fax

Email

Country

Date, Signature

## Information:

### Terms of payment:

The amount is due for payment 2 weeks after receipt of the invoice. The course fee must be paid to the following bank account or via CREDIT CARD:

Bankname: Sparkasse Gelsenkirchen  
Konto-Nr. / Account No.: 160 158 060  
BLZ / Bank Code Number 420 500 01

### Discounts:

**Students, employees of universities and employees of start-up companies (<3 years) qualify for a 20% discount. Please send in a copy of an appropriate certificate proving your status. Every 2<sup>nd</sup> and further registrant from the same organization applies for a 15% discount.**

**\*only 1 discount applicable!**

**Registration is valid only with receipt of confirmation and payment of the course fee.**

A cancellation is up to 6 weeks before free of charge. After that date we charge 50% of the registration fee. For a cancellation within the last 7 days 80% are charged of the course fee. If the cancellation takes place later or the participant or a backup does not attend the course, we are entitled to deduct the full participation fee.

**The course fee includes: script, certificate\* “Medical Device MR Safety Specialist”, 3 x breakfast snack, 2 x lunch, 1 x dinner and hot as well as cold drinks.**

The number of participants is limited. The places will be assigned in sequence of the receipt of registrations. MRI-STaR reserves the right to offer an alternative seminar date, if the number of participants is too low or too high.



## On-site & online Hands-on MR course

### Seminar location

MRI-STaR GmbH  
Conference room  
Buschgrundstr. 23, 45894 Gelsenkirchen, Germany  
CEST TIME ZONE

## The “Medical Device MR Safety Specialist” Magnetic Resonance Imaging - MR Safety and Compatibility of Medical Devices

## 14, 15 & 16 March 2024

### Organizer

MRI-STaR GmbH & MR:comp GmbH  
[www.mri-star.com](http://www.mri-star.com)  
Buschgrundstr. 23  
45894 Gelsenkirchen, Germany

In cooperation with: the Professional Committee „Medical Technologies in MRI“ DGBMT im VDE [www.vde.com/de/dgbmt](http://www.vde.com/de/dgbmt) & [www.mrcomp.com](http://www.mrcomp.com)



Please send your registration to:  
Fax: +49-209-1497730-88  
Email: [seminar@mri-star.com](mailto:seminar@mri-star.com)

**We would be pleased welcoming you as attendee!**

MRI-STaR Seminar Day 1:	MRI-STaR Seminar Day 2:	MRI-STaR Seminar Day 3:
09:15 - 09:30 Welcoming / Breakfast	09:00 - 09:15 Breakfast	08:30 - 08:45 Breakfast
09:30 – 10:00 Introduction	09:15 - 10:15 <b>The Anatomy of modern Gradient Systems &amp; its related Safety Aspects</b> (Schmitt) <small>webex</small>	08:45 - 10:00 <b>MR safety and compatibility II</b> (Schaefers) <b>of medical devices (and items)</b> - Finding the “worst-case” - Labeling of medical devices for the MR environment
10:00 - 10:15 <b>Virtual visit of the MR system</b> (Kugel)	10:15 - 10:30 <b>Coffee break</b>	10:00 - 10:15 <b>Coffee break</b>
10:15 - 11:45 <b>Basics of MR physics and technical aspects I</b> (Kugel)  - Static magnetic field, RF-Field, Gradient-field - MR system components - Refresh of the physical principle - Physics of MRI (spin, magnetization, MR signal) - MR image acquisition (RF pulse sequences, gradients, geometry, signal to noise & contrast, contrast agents) - MR Imaging techniques (fast imaging, perfusion, diff.)	10:30 - 11:15 <b>Hands on: MR Safety</b> (Görtz)  - RF-induced heating Experiment	10:15 - 11:15 <b>Practical training: Behavioral measures in MR routine (Implant labeling research)</b> Schaefers  - Implant research - Case studies
11:45 - 12:00 <b>Coffee break</b>	11:15 - 11:30 <b>Coffee break</b>	11:15 - 11:30 <b>Coffee Break</b>
12:00 - 12:30 <b>Safety Instruction</b> (Kugel)	11:30 - 13:00 <b>Computational methods, RF-safety &amp; implants</b> (Zylka)  - Research & Trends related to MR safety - Numerical simulation and modeling	11:30 - 12:45 <b>Assessment of MR safety for patients with active implantable med. devices</b> (Brink) <small>webex</small>  - ISO/TS 10974: Requirements for active implantable med.dev. - Potential physical relevance for passive devices
12:30-12:40 <b>Grab a coffee</b>	13:00 - 14:00 <b>Lunch break</b>	12:45 - 13:00 <b>Grab a coffee</b>
12:40-14:10 <b>Significant hazards MRI II (IEC 60601-2-33 Edition 4.0 2022-08)</b> (Brink)  - General terms - Presentation of hazards - Technology of superconductivity and potential risks of cryogens - Laser	14:00 - 15:00 <b>MRI from clinical view I</b> (Melzer) <small>webex</small>  - Diagnostics & Therapy - Surgery & Interventions (Biopsy, Ablation (RF, Laser), etc.)	13:00 - 13:45 <b>FDA Regulatory Aspects on MR Safety, (Kainz) Testing and Labeling of med. devices</b> <small>webex</small>
14:10 - 15:00 <b>Lunch break</b>	15:00 - 15:10 <b>Coffee break</b>	13:45 - 14:15 <b>Multiple Choice Test /Discussion &amp; Farewell</b>
15:00 - 16:30 <b>MR safety and compatibility I</b> (Schaefers) <b>of medical devices (and items)</b> <b>Significant hazards MRI I</b> item-specific  - Interactions of items (incl. implants) within the MR environment (static magnetic field, switched gradient and RF field) - Current technical standards & guidance, MR testing methods	15:10 - 15:50 <b>MRI from clinical view II</b> (Melzer) <small>webex</small>  - Robotics, Navigation, Visualization of implants and instruments	<b>Lecturers:</b>  <b>Prof. Dr. rer. nat. W. Zylka</b> Westfälische Hochschule, University of Applied Sciences, Germany  <b>Dr. rer. nat. H. Kugel</b> University Clinic for Radiology, University of Munster, Germany  <b>Prof. Dr. med. A. Melzer</b> Institute for Medical Science and Technologies IMSaT, Universities Dundee & St. Andrews, United Kingdom  <b>J. van den Brink, PhD</b> Principal Scientist & Architect, Philips MRI, Best, The Netherlands  <b>Dipl.-Phys. W. Görtz</b> Senior Physicist, MRI-STaR GmbH, Gelsenkirchen, Germany  <b>Dipl.-Phys. F. Schmitt</b> MR-Consultant, MR:Comp, former VP Gradient Systems & Director Ultra Highfield Imaging at Siemens Healthcare, Erlangen, Germany  <b>Wolfgang Kainz, PhD</b> CEO & President, High Performance Computing for MRI Safety, LLC, USA  <b>Dipl.-Ing. (FH) G. Schaefers</b> MR Safety Testing Laboratory, MR:comp GmbH, Gelsenkirchen, Germany
16:30 – 17:00 <b>Coffee break/Transfer to scanner</b>	15:50 - 16:30 <b>Coffee break/ Transfer to scanner</b>	
17:00-18:45 <b>Hands-on: MR basics</b> (Kug./Sch.)  - Preventive measures and safety in the MR environment (staff & items) - Hands-on, Basic MR imaging: Sequence selection, planning geometry and contrast - MR imaging: image quality, artifacts	16:30 - 18:30 <b>Hands on: MR intervention</b> (Melzer/Sch)  - Your first MR-guided puncture of a tumor phantom - Learn about the difficulties in technique	
18:45-19:15 <b>Final discussion with snack</b>	18:30 - open end <b>Final discussion &amp; Get together dinner</b>	
	<b>Target audience:</b> The seminar is especially designed for the <b>MR safety technical interests of auditors and quality/regulatory affairs managers, product and sales managers, R&amp;D managers/engineers, MR clinicians, MR physicists.</b>  <b>The seminar language is English.</b> For a German-speaking seminar, please send us your request.	