# School Special Semester on Tomography

October 3-7, 2022

Organizers: Ronny Ramlau and Otmar Scherzer

| | Monday<br>Oct. 3 | Tuesday<br>Oct. 4 | Wednesday<br>Oct. 5 | Thursday<br>Oct. 6 | Friday<br>Oct. 7 |
|---|---|---|---|---|---|
| 09:00 - 10:15 | **Arrival. Registration: 13:00-13:30** | **Henning Voss** *"MR Image Acquisition"* | **Peter Elbau** *"The Mathematics behind Optical Coherence Tomography - Part 1"* | **Samuli Siltanen** *"Invitation to sparse-data X-ray tomography - Part 3"* | **Simon Arridge** *"Imaging with Sound and Light - Part 3"* |
| 10:15 - 10:45 | | *Coffee Break* | *Coffee Break* | *Coffee Break* | *Coffee Break* |
| 10:45 - 12:00 | | **Henning Voss** *"MRI Applications"* | **Peter Elbau** *"The Mathematics behind Optical Coherence Tomography - Part 2"* | **Samuli Siltanen** *"Invitation to sparse-data X-ray tomography - Part 4"* | **Simon Arridge** *"Imaging with Sound and Light - Part 4"* |
| 12:00 - 13:30 | | *Lunch Break* | *Lunch Break* | *Lunch Break* | *Lunch Break* |
| 13:30 - 14:45 | **Henning Voss** *"MR Images – An Introduction"* | **Excursion VOEST Stahlwelten and Dinner** **leaving 13:00** | **Samuli Siltanen** *"Invitation to sparse-data X-ray tomography - Part 1"* | **Simon Arridge** *"Imaging with Sound and Light - Part 1"* | **Günter Auzinger** *"Foundations of Adaptive Optics in Astronomy and Medicine - Part 1"* |
| 14:45 - 15:15 | ***Coffee Break*** | | *Coffee Break* | *Coffee Break* | *Coffee Break* |
| 15:15 - 16:30 | **Henning Voss** *"MRI Physics "* | | **Samuli Siltanen** *"Invitation to sparse-data X-ray tomography - Part 2"* | **Simon Arridge** *"Imaging with Sound and Light - Part 2"* | **Günter Auzinger** *"Foundations of Adaptive Optics in Astronomy and Medicine - Part 2"* |

## ABSTRACTS

**Henning Voss:** This course introduces the physical and technological foundations of MRI, as well as applications in the brain. Special emphasis will be put on imaging the functional and structural networks of the brain. A number of quiz questions will be interspersed throughout the course. By providing the foundations of MRI and discussing current research, the goal of this course is to enable the student to find and discuss interesting research questions on their own.