ETH zürich

Master your Master!

Find out more about your favourite Master's programme in engineering and technology at ETH Zurich

Christian Frei

Coordinator MSc BME

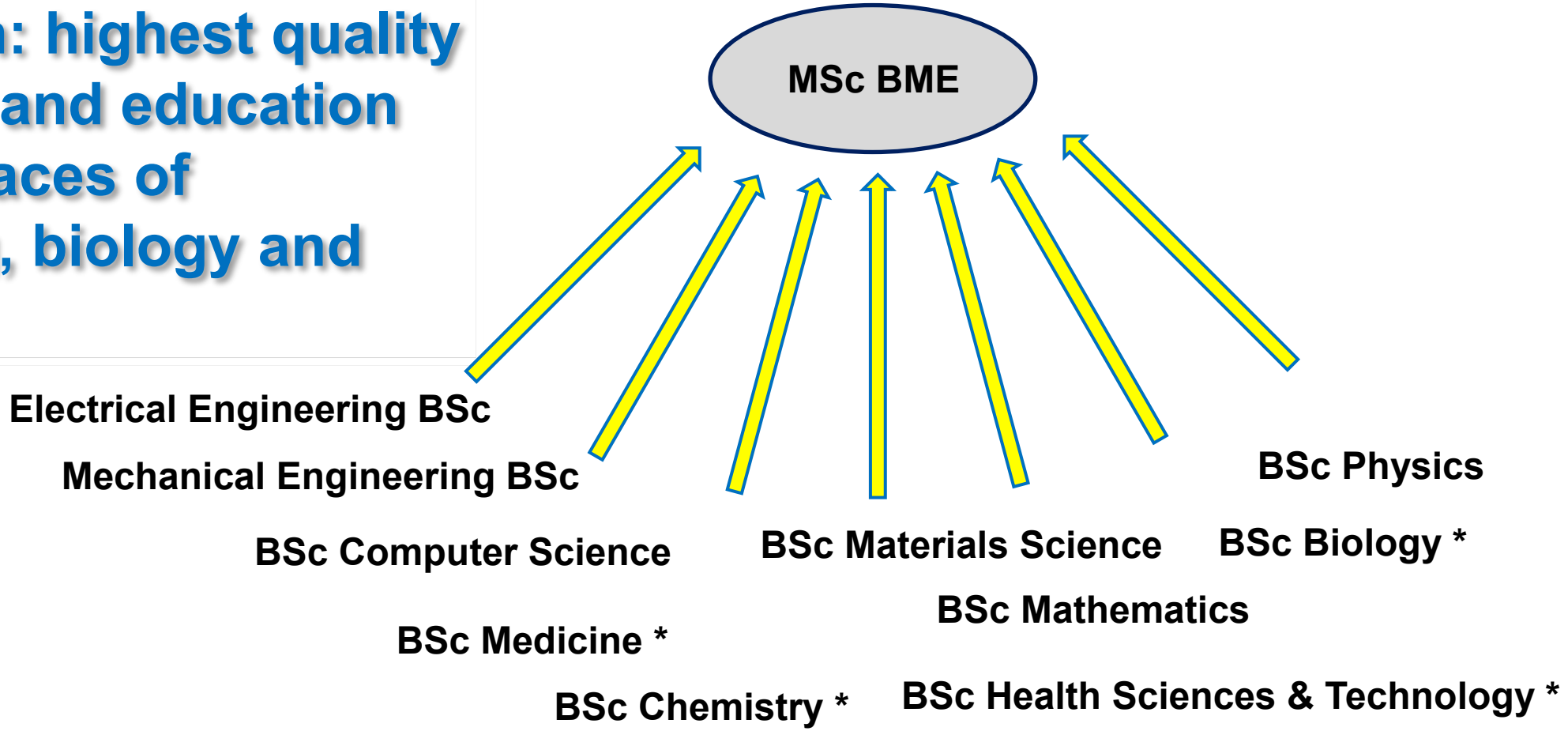
ETH zürich

BIOMEDICAL ENGINEERING

MSc Biomedical Engineering (BME)

A specialized Master hosted by the departments D-ITET (leading house), D-HEST, D-MAVT and D-PHYS

Our mission: highest quality of research and education at the interfaces of engineering, biology and medicine



*: does not qualify for all tracks (see below)

MSc Biomedical Engineering: five tracks

ETH zürich

BIOMEDICAL ENGINEERING

- Bioelectronics
- Bioimaging
- Biomechanics
- Medical Physics
- Molecular Bioengineering

- Ø 2013-2022: 48 new students/year
- Ø 2013-2022: 52.8% CH-Bachelors

Track Bioelectronics

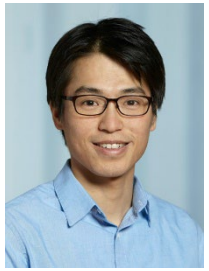
- Track advisors

Taekwang Jang

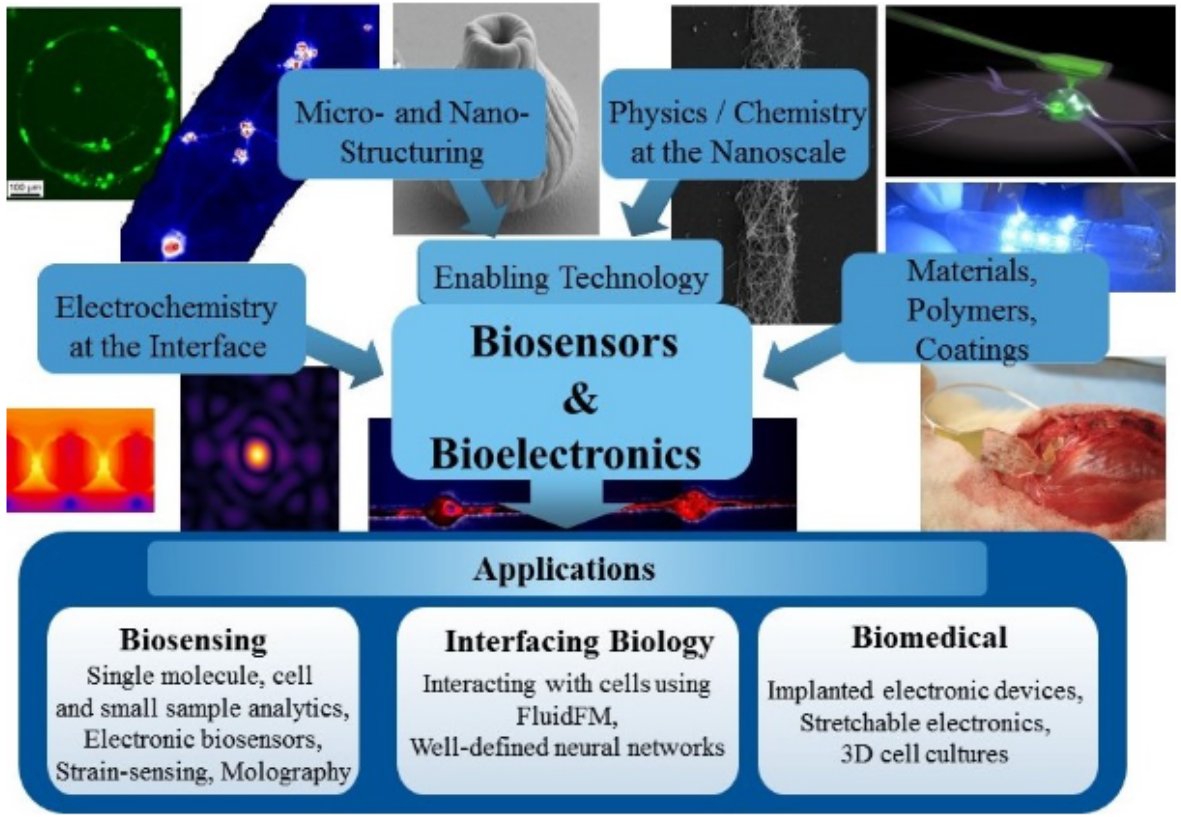
Janos Vörös

Hua Wang

Mehmet Fatih Yanik




We conduct interdisciplinary research at the interface between engineering, nanotechnology, materials science, medicine, and biology. We are interested in answering basic research questions that are related to molecular and cellular processes at electrified interfaces and to **neural networks** →.
We apply our knowledge for developing new nanoscale tools (e.g. the **FluidFM**) and methods for **biosensing, diagnostics** →, and **interfacing biology** →.
We also develop new **biomedical devices** →using stretchable electronics.

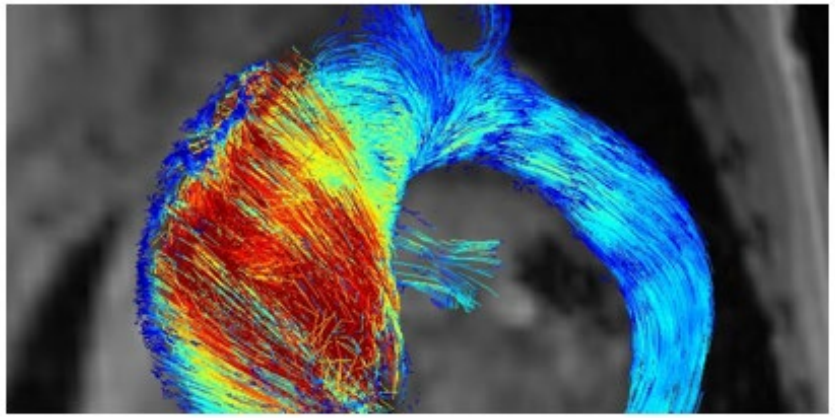


Track Bioimaging

- Track advisor

Klaas Prüssmann

Blood flow in the aorta



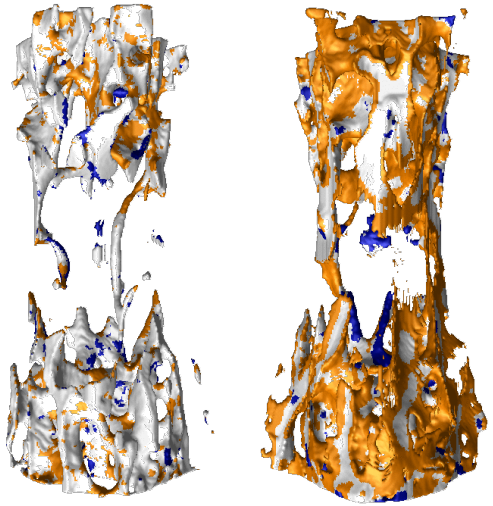
MRI technology

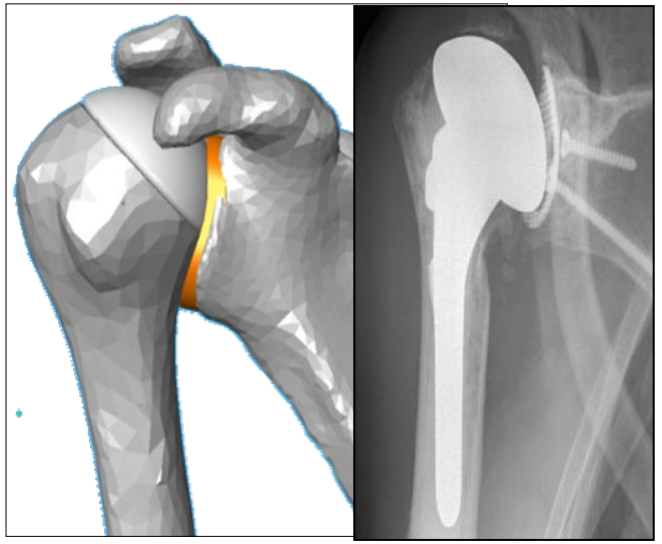
Connectivity in the brain

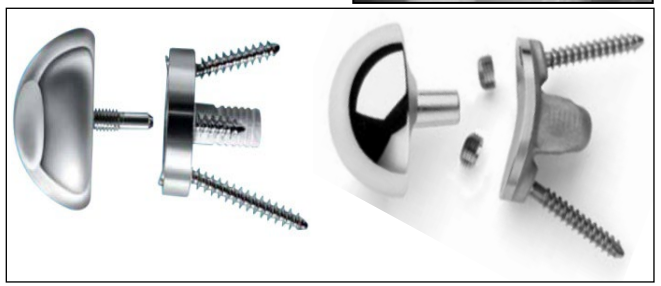
Track Biomechanics

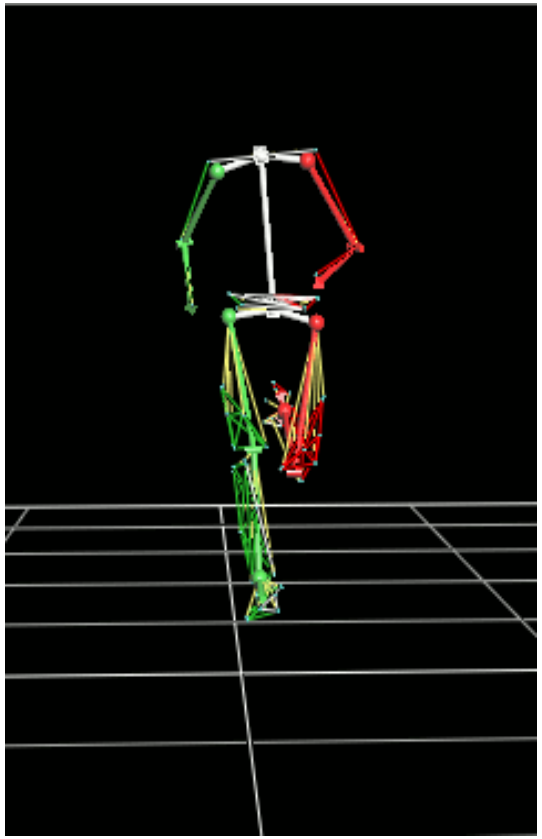
- Track advisor

Ralph Müller









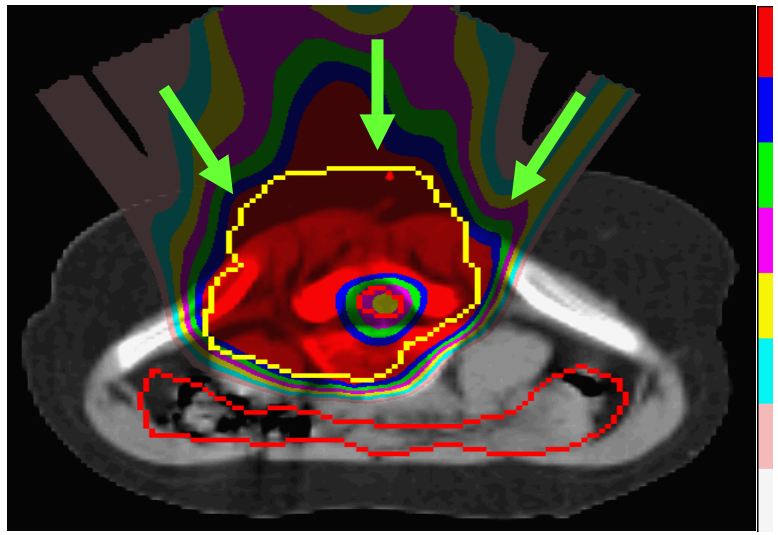
Track Medical Physics

- Track advisors

Tony Lomax

Marco Stampanoni

Paul Scherrer Institute, Villigen



The MSc runs in parallel with the MAS (Master of advanced studies) in Medical Physics

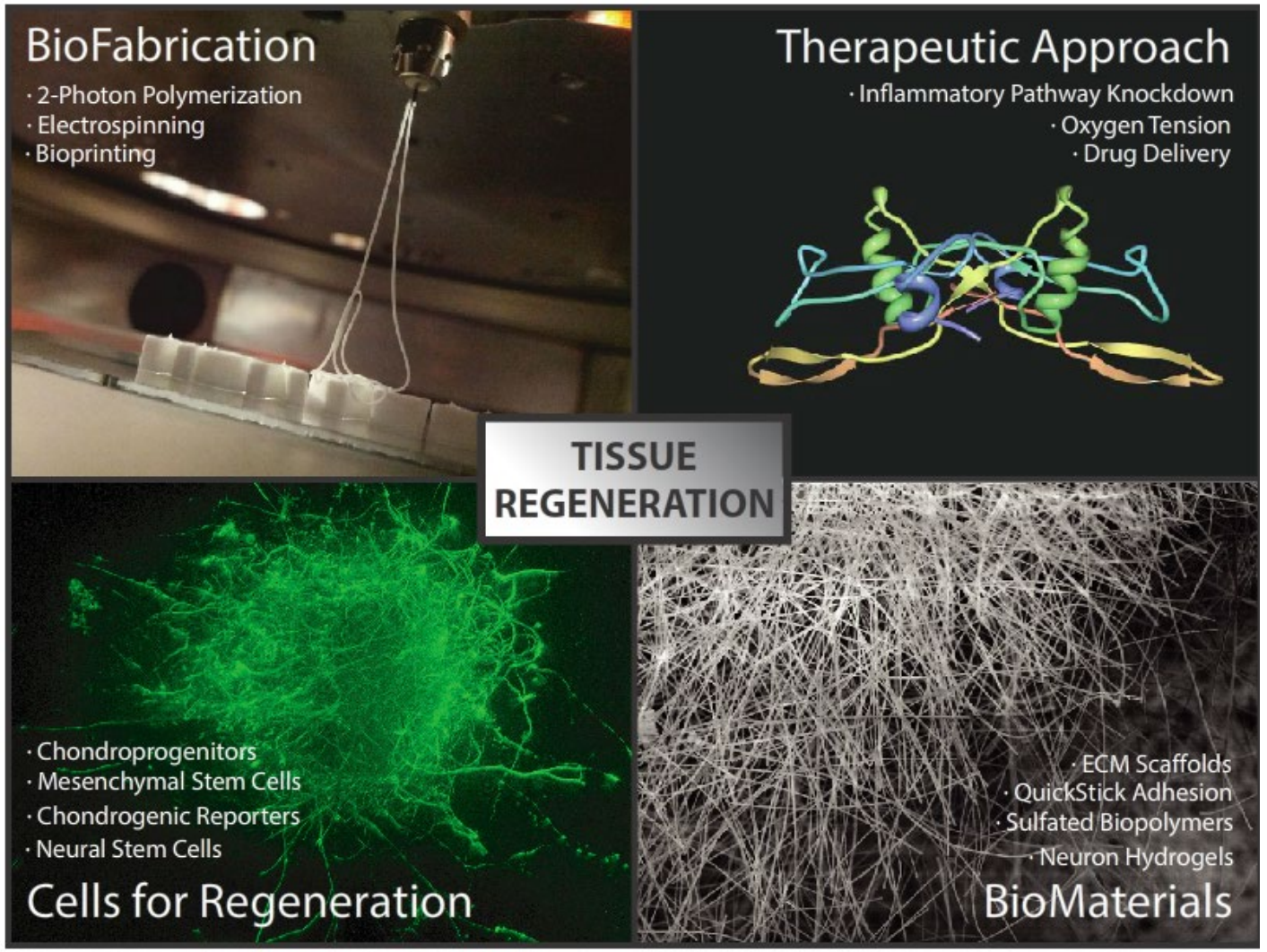
Fachanerkennung *Schweizerische Gesellschaft für Strahlenbiologie und Medizinische Physik* (SGSMP)

Track Molecular Bioengineering

- Track advisor

Mark Tibbitt

Marcy Zenobi



How to enter our program

- Application through the Rectorate (Admission's office)
- November 1 - December 15, or April 1 - April 30 (Bachelors from Switzerland only)
- (ESOP application: Nov.-Dec. only)
- Start of the MSc: Autumn semester

- Documents required:
- Bachelor degree (the same rules apply as in your consecutive BSc)
- Transcripts (Pdf of «Leistungsübersicht» from mystudies)
- Motivation letter, CV, GRE (Graduate Record Examinations; suggested) and two letters of reference (ETH-Bachelors are exempt)
- Holders of a Swiss matriculation certificate (Matura) and/or an ETH Bachelor: No English language certificate required

Qualifying Bachelor degrees

a. For admission to the tracks "Bioelectronics" and "Bioimaging":

- Electrical Engineering
- Mechanical Engineering
- Physics
- Material Science
- Computer Science
- Mathematics
- Chemical Engineering
- Biotechnology
- Computational Science and Engineering
- Biomedical Engineering

b. For admission to the tracks "Biomechanics":
All disciplines listed in Subpara. a and:

- Health Sciences and Technology
- Human Movement Sciences
- Life Sciences and Technology

c. For admission to the tracks "Mol. Bioengineering":
All disciplines listed in Subpara. a and:

- Biology
- Chemistry
- Health Sciences and Technology
- Human Movement Sciences
- Life Sciences and Technology
- Medicine

d. For admission to the tracks "Medical Physics":
All disciplines listed in Subpara. a and:

- Biology
- Chemistry
- Health Sciences and Technology
- Life Sciences and Technology
- Medicine

How to enter our program

- Selection committee (about 5 members): Evaluation of all applications
- Positive evaluation: Admission to one particular track

MSc Biomedical Engineering is a 120 CP Master

- a. Specialization courses — min. 52 credits
  - Core courses of specialization (min. 12 cp)
  - Elective courses of specialization (-- cp)
  - Biology courses (-- cp)
- b. Projects and practicals — min. 12 credits
  - Semester project (min. 12 cp)
  - Group- and Research projects (24 cp)
  - Internship in industry (12 cp)
- c. Science in Perspective (D-GESS) — min. 2 credits
- d. Master Thesis — 30 credits

Learning agreement with track advisor

- The minima of compulsory cp sum up to 96 cp. The remaining 24 cp can be obtained from categories a. and/or b. (but not c. and d.).

www.master-biomed.ethz.ch