Master your Master!

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

Christian Frei

Coordinator MSc BME

MSc Biomedical Engineering (BME)

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

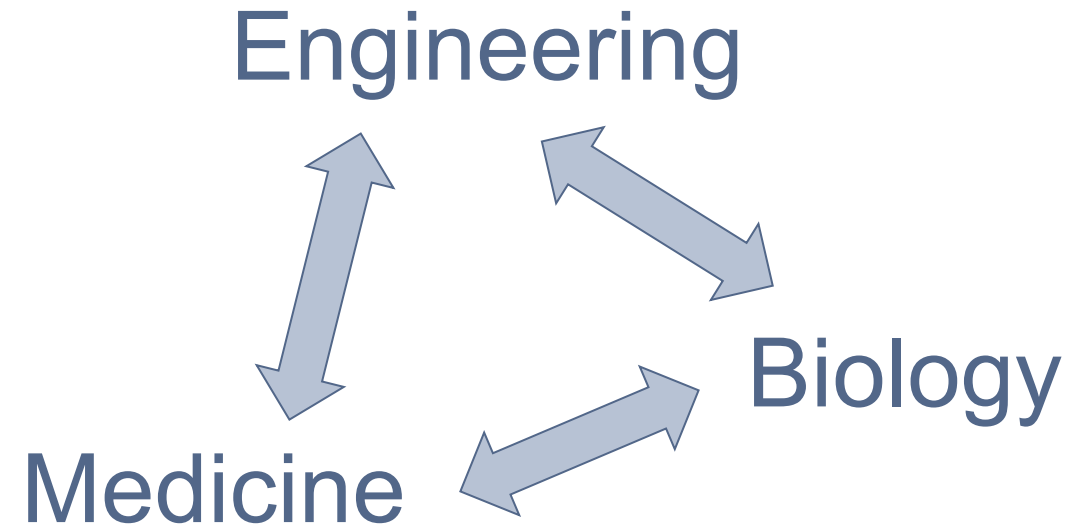**Student representatives (BEEZ):**

- **Walter Bernardi** (Bioelectronics)
- **Eylul Ceylan** (Biomechanics)
- **Gian Guido Parenza** (Medical Physics)
- **Leila Gastli** (Bioimaging)
- **Luca Pricolo** (Mol. Bioengineering)

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

Engineering

Biology

Medicine

MSc Biomedical Engineering: five tracks

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

- Ø 2013-2019: 39 new students/year
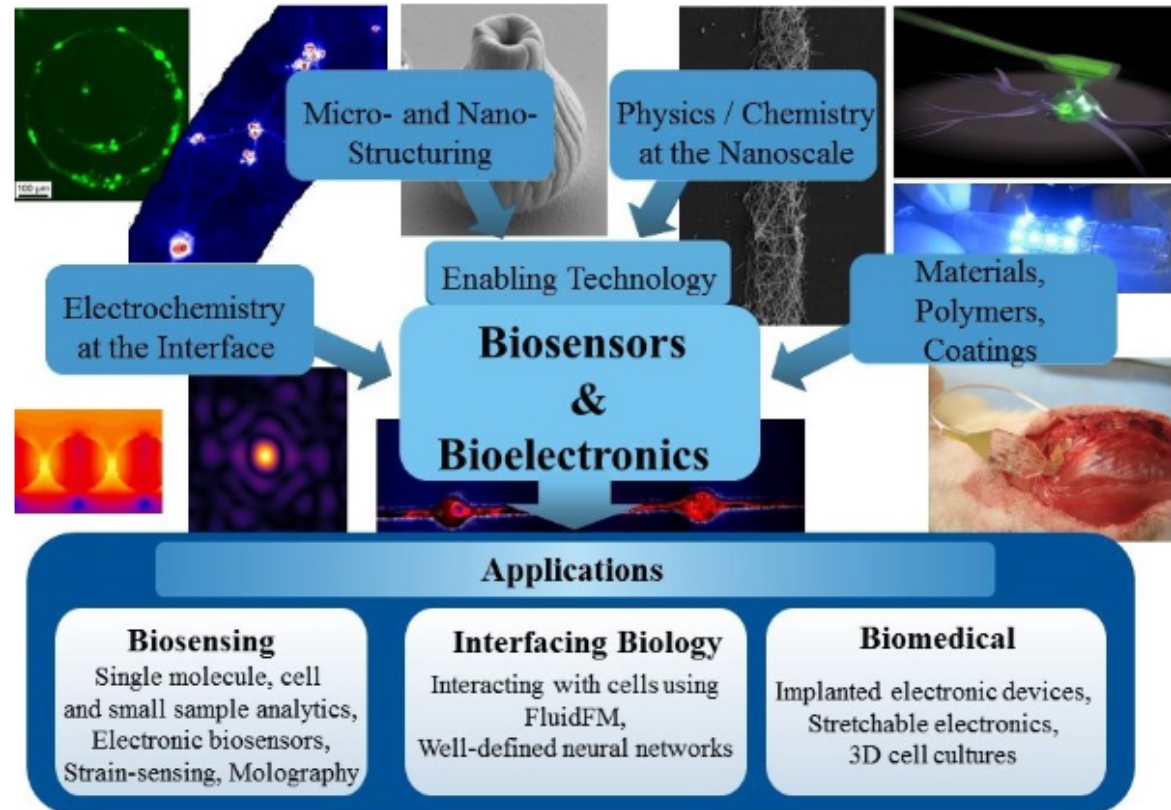- Ø 2013-2019: 50.7% CH-Bachelors

Track Bioelectronics

- Track advisor

Prof. Janos Vörös

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 →.
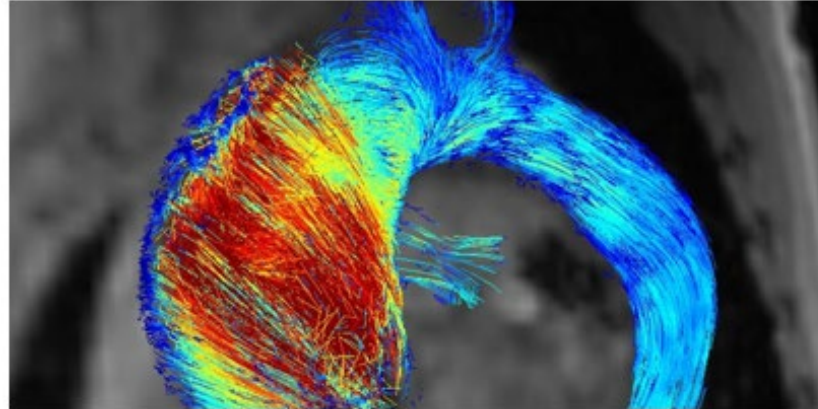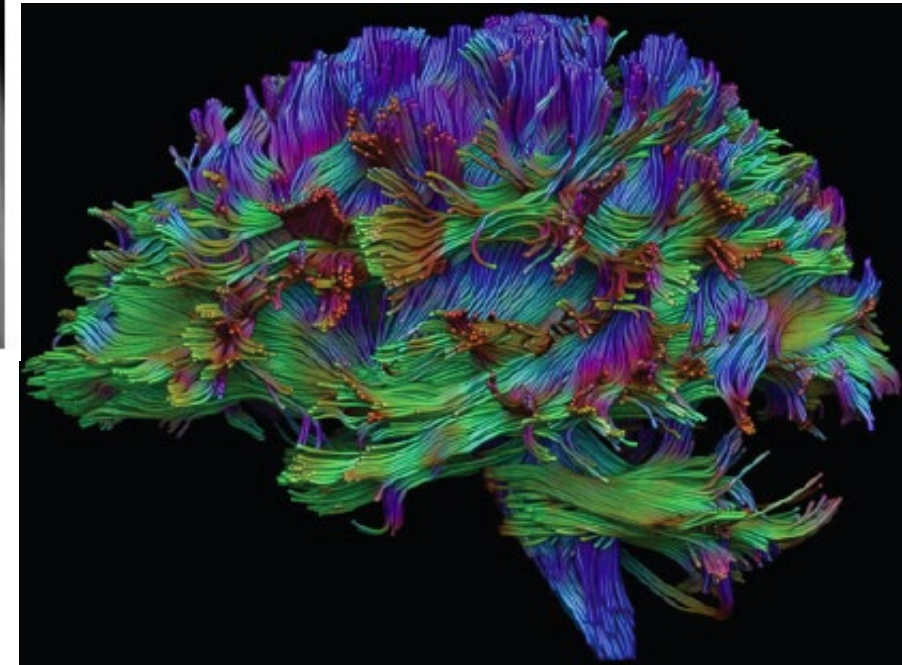We also develop new biomedical devices →using stretchable electronics.

Track Bioimaging

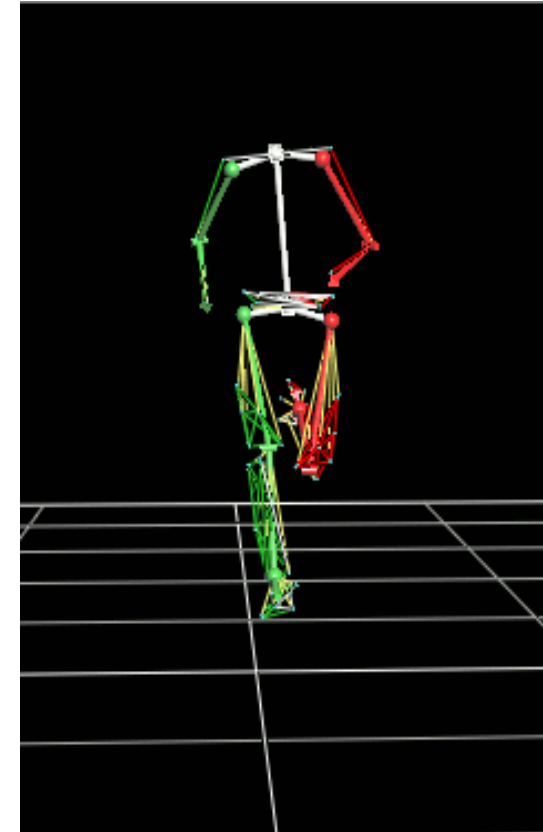- Track advisor
Prof. Klaas Prüssmann

Blood flow in the aorta
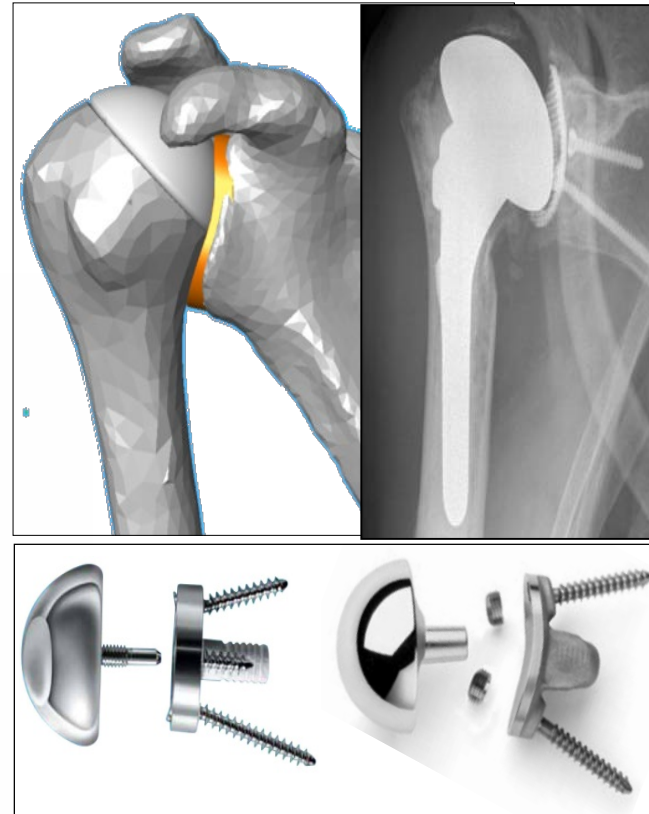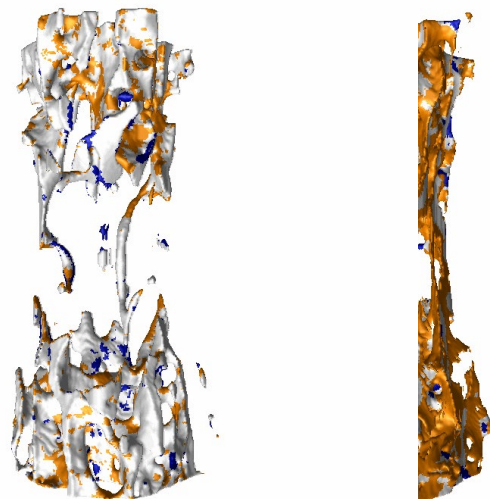

MRI technology

Connectivity in the brain

Track Biomechanics

- Track advisor

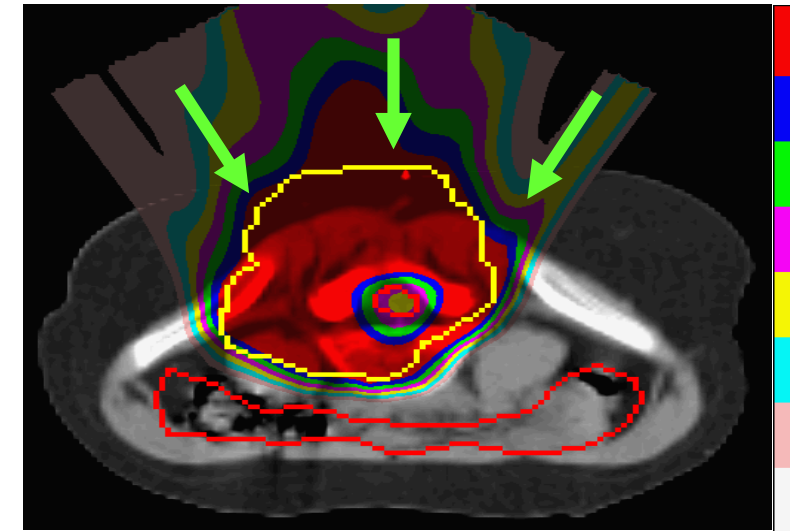Prof. Ralph Müller

Track Medical Physics

- Track advisors

Prof. Tony Lomax

Prof. 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

Prof. Marcy Zenobi

How to enter our program

ETH Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

Merkblatt für an der ETH Zürich immatrikulierte Bachelor-Studierende

Übertritt vom ETH Bachelor- ins ETH Master-Studium
zum
Herbstsemester 2020 und Frühjahrssemester 2021

Übersicht

1. **Vier Varianten des Übertritts in einen Master-Studiengang**
2. **Zeitpunkt des Übertritts**
3. **Zwischensemester/-jahr vor Beginn eines konsekutiven Master-Studiums**
4. **Am häufigsten gestellte Fragen**

Kapitel 1   Vier Varianten des Übertritts in einen Master-Studiengang

Für den Übertritt ins ETH-Master-Studium mit einem ETH-Bachelor-Diplom oder nach Erreichen der Mindestanzahl Kreditpunkte in einem ETH Bachelor-Studiengang gibt es vier Varianten. Der Übertritt ist für diese **vier Varianten** unterschiedlich geregelt:

Variante 1: **Übertritt in einen konsekutiven Master-Studiengang** <u>ohne</u> **Wechsel der Studienrichtung**
s. Seite 2
Die Mehrzahl der Studierenden tritt nach dieser Variante in einen an ihr Bachelor-Studium anschliessenden konsekutiven Master-Studiengang ein.

Variante 2: **Übertritt in einen konsekutiven Master-Studiengang** <u>*mit*</u> **Wechsel der Studienrichtung**
s. Seite 4

Variante 3: **Übertritt in einen spezialisierten Master-Studiengang oder in einen Joint Master-Studiengang mit Einreichung der Bewerbung an der** <u>*ETH*</u>, s. Seite 5.

Variante 4: **Übertritt in einen Joint Master-Studiengang mit Einreichung der Bewerbung an einer** <u>*anderen*</u> **Hochschule**, s. Seite 6.

How to enter our program

- Application through the Rectorate (Admission's office)
- November 1 - December 15, or March 1 - March 31
- Start of the MSc: Autumn semester

- <u>Documents required</u>:
- 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

Note: minimal requirements in mathematics/physics

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

min. 30 cp

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

min. 22 cp

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

min. 10 cp

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

min. 22 cp

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