# **ETH** zürich **COMPUTATIONAL SCIENCE AND ENGINEERING**

# **Computer Based Numerical Simulation of Complex Phenomena and Systems**



#### **Bachelor CSE**

1st Year:	Basics of Mathematics, Physics and Computer Science $\overset{\star}{}$
2nd Year:	Numerical Methods for CSE, Analysis of PDEs, Stochastics Numerical Methods for PDEs, Programming Techniques Quantum Mechanics, Statistical Physics Fluid Dynamics, Data Bases, Computer Engineering
3rd Year: BSc-Thesis:	High Performance Computing, Software Engineering 2 lectures in an application area with computational aspects Small project within a scientific group in a specialization area



State-of-the-art simulations of 300'000 quantum particles compared to experiments





Noise generation in the flow of a coaxial jet engine (Michael Gloor, Diss. ETH Zrich Nr. 22079)

Master CSE		
Core Courses:	How To Write Fast Numerical Code, Computational Statistics, Visual Computing	
Specialization:	4 lectures and a seminar extending the area from Bachelor or in a new field	
Case Studies:	Invited speakers on applied topics and own talks	
Term Paper:	typically contribution to a research project	
Master Thesis:	independent project in a specialization area	

## **BSc-/MSc-Theses in many Departments**



### **Number of Students**



Further information: www.rw.ethz.ch