Dr. rer. nat. Alexander Heinlein

- Email: alexander.heinlein@mathematik.uni-stuttgart.de
- URL: https://sites.google.com/site/heinleinlein/ and https://numerik.uni-koeln.de/arbeitsgruppe/dr-a-heinlein
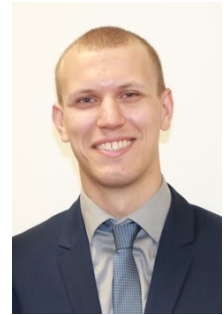
Academic Experience

WS2020/2021
INTERIM PROFESSOR.. UNIVERSITÄT STUTTGART, GERMANY

SINCE 02/2018
MANAGING COORDINATOR (CDS) ....UNIVERSITÄT ZU KÖLN, GERMANY
- On leave during winter semester 2020/2021.

SINCE 04/2016
POSTDOCTORAL RESEARCHER ....UNIVERSITÄT ZU KÖLN, GERMANY
- On leave during winter semester 2020/2021.

2013 – 2016
RESEARCH ASSISTANT...UNIVERSITÄT ZU KÖLN, GERMANY

2012 – 2013
RESEARCH & TEACHING ASSISTANT ....UNIVERSITÄT ZU KÖLN, GERMANY

2011 – 2012
RESEARCH & TEACHING ASSISTANT .... UNIVERSITÄT DUISBURG-ESSEN, GERMANY

Software

- FROSch (Fast and Robust Overlapping Schwarz) (https://shylu-frosch.github.io) domain decomposition solver package, part of the Trilinos (https://trilinos.org) package ShyLU.
- Trilinos (https://trilinos.org)
- LifeV (https://bitbucket.org/lifev-dev/lifev-release/wiki/Home)

Research Interests_____

- Numerical methods for Partial Different Equations
  - Linear and nonlinear domain decomposition methods (DDM)
  - Multiscale discretizations
  - Computational homogenization
  - Model order reduction
  - Coupling algorithms
- Scientific computing
  - Numerical software development
  - Computational fluid dynamics (CFD)
  - Computational solid mechanics (CSM)
  - Fluid-structure interaction (FSI)
- High-performance computing (HPC)
  - Highly scalable solvers for large linear and nonlinear systems
  - Hybrid parallelization, CPU and GPU computing
- Scientific machine learning (SciML)
  - Hybrid algorithms
  - Physics-informed machine learning
- Application areas
  - Computing and information science
  - Biomedical science
  - Material science
  - Geosciences

Teaching _____

WS 2020/2021
SCIENTIFIC COMPUTING .... UNIVERSITÄT STUTTGART, GERMANY

- *Lecture:* Tuesday & Thursday, 9:45-11:15
- *Exercise class:* Wednesday, 9:45-11:15

WS 2020/2021
SEMINAR ON MACHINE LEARNING .... UNIVERSITÄT STUTTGART, GERMANY

- *Block seminar:* date will be coordinated with the participants.
- *Application deadline for the presentation and assignment of the projects:* October 1st, 2020.
- Application via email at alexander.heinlein@mathematik.uni-stuttgart.de.
- *More details:* https://ilias3.uni-stuttgart.de/goto_Uni_Stuttgart_grp_2050120.html