

SIAM Student Chapter Final Report for 2014-2015 Academic Year (page 1 of 3)

*Student Chapters receiving funds from SIAM are required to submit a final report of activities and finances by the end of the academic year. Please complete final report, sign and submit to SIAM office by June 30, 2015. Please attach separate sheet of paper if additional space is needed. **

Date of report: June 30, 2015
Student Chapter: Delft University of Technology
Chapter Website: <http://sscdelft.github.io/>
Chapter Facebook Page: <https://www.facebook.com/siamscdelft/>
Chapter Twitter Handle: https://twitter.com/SSC_Delft
Faculty Advisor: Prof.dr.ir. C. Vuik and dr.ir. M.B. van Gijzen

Please check Chapter listing on SIAM Web site <http://www.siam.org/students/chapters/current.php> and report any changes below, or email revisions to snell@siam.org.

Demographics of Chapter Membership

Member type	
Undergraduates	8
Graduate members	39
Faculty members	13
Total Members	60

Gender	
Male	43
Female	17
Total Members	60

Departments	
Mathematics	
Applied Math	42
Physics	
Computer Science	
Engineering	16
Statistics	2
Total Members	60

Ethnicity of members if known (optional)	
Caucasian	
African American	
Native American	
Hispanic	
Asian	
Total Members	

Report on Chapter Election

Date of Election: June 8, 2015 to elect officers to serve term from September 2015 to August 2016.

Please provide office, name, & email address of all officers elected to serve.

President: Manuel Baumann, M.M.Baumann@tudelft.nl

Vice President: Reinaldo Astudillo, R.A.Astudillo@tudelft.nl

Secretary: Thea Vuik, M.J.Vuik@tudelft.nl

Treasurer: Thea Vuik, M.J.Vuik@tudelft.nl

Other:

Chapter Highlights

Please describe at least one activity in detail that might be a good idea to share with other chapters, suitable for posting on the SIAM website or Student Blog or SIAM Student Chapter Facebook page. (Please attach a separate sheet of paper if additional space is needed.)

The SIAM Student Chapter Krylov day 2015, which was already posted in SIAM News, see

<http://sinews.siam.org/DetailsPage/tabid/607/ArticleID/504/European-Students-Gather-at-TU-Delft-for-Krylov-Day.aspx>.

It would be nice if a link to this news item can be posted in the Student Blog and on the Facebook page.

Report on Chapter Activities

Please provide complete description of all Chapter activities, including details on number & type of meetings with approximate number of attendees, name of invited speaker(s) & topic of presentation, contests, awards, field trips, etc. (Please attach a separate sheet of paper if additional space is needed.)

TITLE OF EVENT OR PRESENTATION: Kickoff meeting

DATE OF EVENT OR PRESENTATION: September 19, 2014

NUMBER OF PARTICIPANTS: 20

SPEAKER, INSTITUTIONAL AFFILIATION: Kees Vuik, TU Delft, and Alex Sangers, TNO

EVENT DESCRIPTION OR PRESENTATION ABSTRACT: Kickoff meeting, SIAM Chapter established.

TITLE OF EVENT OR PRESENTATION: Project BaNaNa

DATE OF EVENT OR PRESENTATION: 10-30-2014, 11-27-2014, 12-18-2014, 01-22-2015, 03-26-2015, 04-16-2015

NUMBER OF PARTICIPANTS: 15

SPEAKER, INSTITUTIONAL AFFILIATION: PhD's and employees of TU Delft

EVENT DESCRIPTION OR PRESENTATION ABSTRACT: see projectbanana.github.io/

The project 'baNaNa' is a self-organised seminar from the PhD students of the numerical analysis department at TU Delft and part of the SIAM Student Chapter Delft. Our aim is to present practical tools and applications from the every-day use of a mathematician to each other. The seminar will be held on a monthly basis and in an informal manner. Everyone is welcome to join our talks and contribute from time to time...

TITLE OF EVENT OR PRESENTATION: Seminar Isogeometric Finite Elements

DATE OF EVENT OR PRESENTATION: September 2014 – January 2015

NUMBER OF PARTICIPANTS: 7

SPEAKER, INSTITUTIONAL AFFILIATION: Organized by Matthias Moller and Thea Vuik, TU Delft

EVENT DESCRIPTION OR PRESENTATION ABSTRACT: see <http://ta.twi.tudelft.nl/nw/users/matthias/teaching.html>

Isogeometric Analysis is one of today's hot topics in Applied Mathematics and starts to make its way into industrial applications. This research direction is motivated by the 'gap between the worlds of finite element analysis (FEA) and computer-aided design (CAD)'. Engineering designs are typically constructed with the aid of sophisticated CAD-tools that make use of B-splines or NURBS. In order to perform a numerical FE-analysis the geometry of the CAD-model needs to be transformed into the finite element framework making use of a completely different geometry description. Isogeometric finite elements aim at closing this gap by using a common geometry model for construction and analysis.

TITLE OF EVENT OR PRESENTATION: Seminar Numerical Algorithms for Quantum Computers

DATE OF EVENT OR PRESENTATION: February 2015 – June 2015

NUMBER OF PARTICIPANTS: 7

SPEAKER, INSTITUTIONAL AFFILIATION: Organized by Matthias Moller and Thea Vuik, TU Delft

EVENT DESCRIPTION OR PRESENTATION ABSTRACT: see <http://ta.twi.tudelft.nl/nw/users/matthias/teaching.html>

Despite many years of active research, universal quantum computers are not yet available but there is hope that such devices might become available within the next decade. With the joint effort of academia and industry concentrated at [QuTech](http://www.quTech.nl), TU Delft might even be among the first to succeed.

This seminar will not focus on *how to build a quantum computer* (leaving this topic to specialists in this field) but on the slightly provocative question *is quantum computing of any use for numerical analysis*. To answer this question one first has to understand the main theoretical principles of quantum computing: [quantum superposition](http://en.wikipedia.org/wiki/Quantum_superposition) and [quantum entanglement](http://en.wikipedia.org/wiki/Quantum_entanglement) (see the [Quantum Computing Primer](http://arxiv.org/abs/1106.0825) for a general overview).

TITLE OF EVENT OR PRESENTATION: Student Krylov Day 2015

DATE OF EVENT OR PRESENTATION: February 2, 2015

NUMBER OF PARTICIPANTS: 20

SPEAKER, INSTITUTIONAL AFFILIATION: Peter Sonneveld, TU Delft, and 12 PhD students

EVENT DESCRIPTION OR PRESENTATION ABSTRACT: see <http://sinews.siam.org/DetailsPage/tabid/607/ArticleID/504/European-Students-Gather-at-TU-Delft-for-Krylov-Day.aspx>

On February 2, the SIAM Student Chapter at TU Delft held a one-day workshop on Krylov subspace methods. The speakers, 12 PhD students in numerical linear algebra, gave overviews of their current work and its relation to Krylov subspaces. Participants came from different universities in The Netherlands and other European countries; among them were representatives of SIAM Student Chapters at Magdeburg, Manchester, and Prague.

Although Krylov methods are often associated with the iterative solution of large-scale linear systems, workshop participants described the application of Krylov subspaces in a wide variety of fields. Topics discussed included polynomial eigenvalue problems, estimation of matrix condition numbers, approximation of matrix functions, and applications in seismic wave propagation and flow control.

As the main speaker, Peter Sonneveld of TU Delft gave a historical talk about the development of the induced dimension reduction (IDR) method, a short-recurrence Krylov method for the efficient iterative solution of linear systems with general system matrices. In collaboration with Martin van Gijzen, Sonneveld has translated theoretical work he did in the 1980s into the IDR(s) algorithm.

TITLE OF EVENT OR PRESENTATION: Company visit TATA Steel

DATE OF EVENT OR PRESENTATION: June 8, 2015

NUMBER OF PARTICIPANTS: 16

SPEAKER, INSTITUTIONAL AFFILIATION: TATA Steel

EVENT DESCRIPTION OR PRESENTATION ABSTRACT: see <http://sscdelft.github.io/activities/2014/11/25/visit-tata-steel.html>

TITLE OF EVENT OR PRESENTATION: Summer barbecue

DATE OF EVENT OR PRESENTATION: July 10, 2015

NUMBER OF PARTICIPANTS: 20

SPEAKER, INSTITUTIONAL AFFILIATION:

EVENT DESCRIPTION OR PRESENTATION ABSTRACT: Final social event before summer.

For SIAM NEWS

Please identify special chapter activities that could be reported in SIAM News:

We are already there, due to the Krylov day!