ARCNL proudly presents its 5th newsletter with highlights of the past six months.

1st pile Matrix VII building

An important step has been taken towards long-term housing for ARCNL. On June 6th Christa Hooijer, Director of NWO-I, the institute branch of the Netherlands Organisation for Scientific Research, NWO, and ARCNL's Director Joost Frenken jointly performed the honorable task of driving the first pile for the new Matrix-VII building into the ground. This event marked the start of a tight construction schedule that should result in the completion of the building by mid-2018. ARCNL will be the first tenant in this building that is owned by the company Matrix Innovation Center. Matrix-VII is located right next to AMOLF, which enables the continuation of the intense collaboration between ARCNL and AMOLF.

Vidi grant for Oscar Versolato

Oscar Versolato

ARCNL group leader Oscar Versolato has been awarded an NWO Vidi grant. This prestigious € 800.000 grant enables Versolato to study the physics of plasma sources of extreme ultraviolet (EUV) light for nanolithography. Nanolithography with EUV light will enable shrinking chips to ever smaller sizes. When asked about his motivation, Versolato says, "I intend to meet this challenge by building a strong scientific base that will underpin more stable and powerful laser-produced plasma sources of EUV light."

Publications

ARCNL researchers are increasingly getting their experimental results published in peer reviewed papers. The first six months of 2017 resulted in six peer-reviewed papers.

- M.J. Deuzeman, A.S. Stodolna, E.E.B. Leerssen, A. Antoncecchi, N. Spook, T. Kleijntjens, J. Versluis, S. Witte, K.S.E. Eikema, W. Ubachs, R. Hoekstra, and O.O. Versolato, Ion distribution and ablation depth measurements of a fs-ps laser-irradiated solid tin target, Journal of Applied Physics 121, 103301 (2017), doi: http://dx.doi.org/10.1063/1.4977854.
- F. Torretti, A. Windberger, A. Ryabtsev, S. Dobrodey, H. Bekker, W. Ubachs, R. Hoekstra, E.V. Kahl, J.C. Berengut, J.R. Crespo Lopez-Urrutia and O.O. Versolato, Optical spectroscopy of complex open-4d-shell ions Sn 7+--Sn 10+, Phys. Rev. A. 95 042503 (2017).
- J. Haitjema, Y. Zhang, N. Ottosson, A.M. Brouwer, Photoreactions of Tin Oxo Cages Model EUV Photoresists, J. Photopolym. Sci. Technol. 2017, in press.
- Y. Zhang, J. Haitjema, X. Liu, F. Johansson, A. Lindblad, S. Castellanos, N. Ottosson, A.M. Brouwer, Photochemical Conversion of Tin-Oxo Cage Compounds Studied Using Hard X-Ray Photoelectron Spectroscopy, Proc. SPIE 2017, 10146, 1014606–1014606–10.
- R. Fallica, J. Haitjema, L. Wu, S. Castellanos, A.M. Brouwer, Y. Ekinci, Absorption and Exposure Kinetics of Photoresists at EUV, Proc. SPIE 2017; 10143, 101430A–11.
- J. Haitjema, Y. Zhang, M. Vockenhuber, D. Kazazis, Y. Ekinci, A.M. Brouwer, Extreme Ultraviolet Patterning of Tin-Oxo Cages, Proc. SPIE 2017; 10143, 1014325–1014325–10.

Other publications

- ARCNL has recently become partner of the magazine '*Amsterdam Science*'. This magazine aims to be a platform of the scientific community in Amsterdam. It offers researchers the opportunity to communicate their latest results to a broad audience. As partner ARCNL was asked to contribute to the editorial staff, after which Cristina Sfiligoj (PhD student in the Nanolayers group) joined the magazine as part-time editor. The latest edition of the magazine appeared on April 5th and it contained an article on the work of Oscar Versolato and his team: "Boxing with tin droplets".
- www.teacheracademy.nl Published an interview with high school teacher Carin Werner-IJgosse, who once a week joins the team of ARCNL researchers. Read more at *https://arcnl.nl*.

NWO-I Sports Day

Continuing the tradition of what used to be the 'FOM Sports Day', ARCNL this year organizes the first 'NWO-I Sports Day'. This event takes place on September 8th 2017 and includes not only the present but also the future NWO-I institutes. We are looking forward to some healthy competition!

Awards

ARCNL director and group leader Joost Frenken received the 2017 Innovation in Materials Characterization Award of the Materials Research Society (MRS). He was chosen from a large group of nominees for "*the development, application and commercialization of high-speed, temperature-controlled, in-situ scanning probe microscopy, leading to key insights in the structure, dynamics and chemistry of surfaces and interfaces.*" The award was presented to Frenken during the 2017 MRS Spring Meeting in Phoenix.

Left: Susan Trolier-McKinstry, MRS President
Right: Joost Frenken

in the middle Andrea Peña at the prize ceremony

Andrea Peña (student in the group of Paul Planken) received the Hendrik Casimir Prize 2016 for best Master student.
The Casimir Research School yearly awards these prizes to the best MSc students in (Applied) Physics of Leiden University and TU Delft.
The prize consists of a certificate and a sum of € 750.

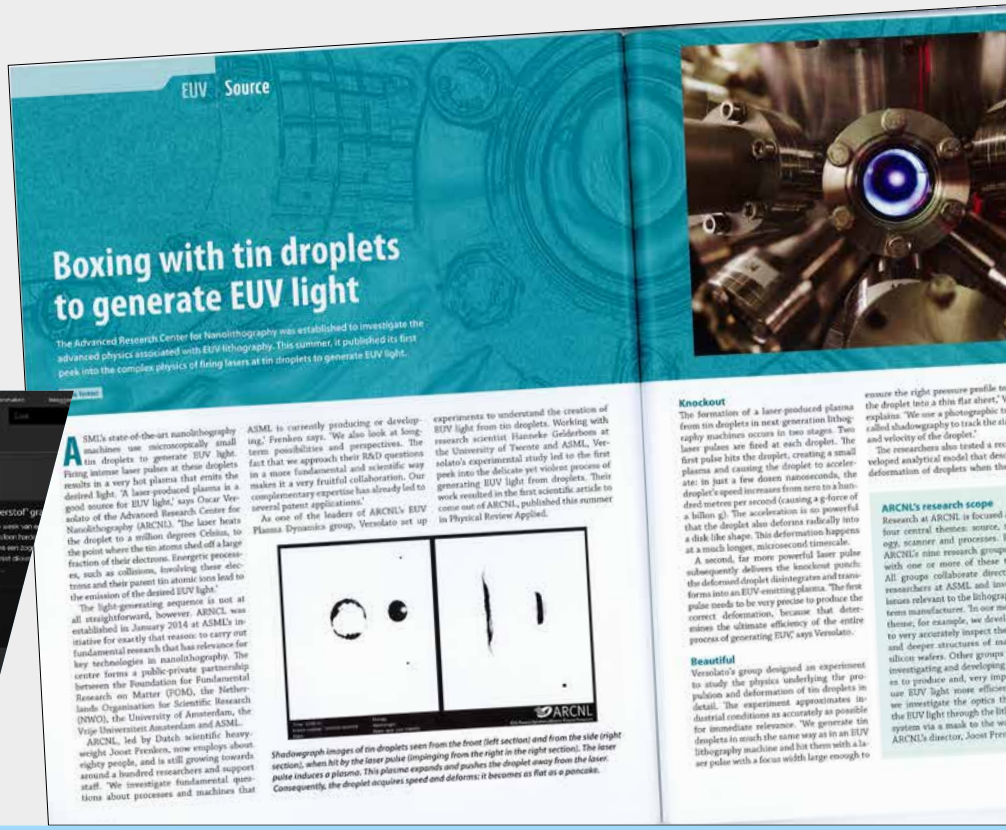
ARCNL in the media

'Boxing with tin droplets'

Oscar Versolato in
Bits & Chips special

'Dreaming of graphene'

Joost Frenken on *Dutch NPO radio 1*,
Langs de lijn en omstreken.



Outreach and visitors

On May 17th ARCNL organized the third edition of Meet-Up@ARCNL. With this event ARCNL aims to attract highly motivated MSc students and provide them with the opportunity to experience the science and the work environment. This serves as a source of candidates for MSc internships and PhD student positions at ARCNL. This year's program was attended by 16 students and it consisted of lectures (a.o. from Wim van der Zande from ASML), lab tours and several inspiring physics and chemistry research cases.

Meet-Up@ARCNL participants

On June 1st, a delegation of the European Patent Office (EPO) visited the Amsterdam Science Park. The visit was hosted by ARCNL. The program also included visits to Start-up Village and Innovation Exchange Amsterdam (IXA).
In addition, ARCNL was visited by university students, industrial delegations and even a group of Danish high school teachers.

Goodbye FOM, welcome NWO-I

After an intense period of careful preparation, the Foundation for Fundamental Research on Matter (FOM) ceased to exist in its original form on January 1st, 2017. Together with AMOLF, Nikhef and DIFFER, ARCNL is now part of NWO-I, the institute branch of the Netherlands Organisation for Scientific Research (NWO), which started on the same date. The other five NWO-institutes will join NWO-I on January 1st, 2018. In spite of the enormous complexity of this operation, the transition was so smooth for ARCNL that it went nearly unnoticed. This should be taken as a big compliment for NWO! In this change from FOM to NWO-I, Michiel van den Hout has been appointed head of Strategic Support at NWO-I. For ARCNL, one of the consequences of Van den Hout's career development is that he can no longer be the institute liaison for ARCNL. We welcome Miriam Roelofs as ARCNL's new institute liaison and secretary to the Governing Board.