

Stela Canulescu, PhD
Head of the Photovoltaic Materials and Systems group
Department of Photonics Engineering
Postal address:
Frederiksborgvej 399
130, 149
4000
Roskilde
Denmark
Email: stec@fotonik.dtu.dk
Phone: 46774519
Web address: <http://www.fotonik.dtu.dk>, <http://www.fotonik.dtu.dk>



Research Interests: Thin-film solar cells; 2D materials and vdW heterostructures; Tandem solar cells; spectroscopy

Activities

An approach to grow 2D materials heterostructures directly based on pulsed laser deposition of solid oxide precursors

Denys Igorevich Miakota (Speaker), Ganesh Ghimire (Other), Rajesh Ulaganathan (Other), Raymond Unocic (Other), David Geohegan (Other) & Stela Canulescu (Other)

7 Nov 2022 → 8 Nov 2022

A direct growth of 2D materials heterostructures based on pulsed laser deposition of solid oxide precursors

Denys Igorevich Miakota (Speaker), Ganesh Ghimire (Other), Rajesh Ulaganathan (Other), Raymond Unocic (Other), David Geohegan (Other), Sara Lena Josefin Engberg (Other) & Stela Canulescu (Other)

25 Jul 2022 → 27 Jul 2022

Alkali halide promoter induced synthesis of crystalline quasi-1D MoS₂ nanoribbons from PLD grown MoO_x precursor

Stela Canulescu (Guest lecturer)

5 Jul 2022 → 8 Jul 2022

Direct growth of 2D materials heterostructures based on pulsed laser deposition of solid oxide precursors

Denys Igorevich Miakota (Speaker), Ganesh Ghimire (Other), Rajesh Ulaganathan (Other), Raymond Unocic (Other), David Geohegan (Other), Sara Lena Josefin Engberg (Other) & Stela Canulescu (Other)

5 Jul 2022 → 8 Jul 2022

A potential approach to grow van der Waals heterostructures based on pulsed laser deposition of solid oxide precursors for thin film photovoltaics

Denys Igorevich Miakota (Speaker), Ganesh Ghimire (Other), Rajesh Ulaganathan (Other), Raymond Unocic (Other), David Geohegan (Guest lecturer), Sara Lena Josefin Engberg (Other), Fabian Felix Bertoldo (Other), Kristian Sommer Thygesen (Other) & Stela Canulescu (Other)

30 May 2022 → 3 Jun 2022

Laser-assisted Synthesis of 2D Quantum Materials and Heterostructures

Stela Canulescu (Invited speaker)

24 Apr 2022 → 29 Apr 2022

Laser-assisted Synthesis of 2D Quantum Materials and Heterostructures

Stela Canulescu (Guest lecturer)

24 Apr 2022

12th European Kesterite Workshop

Stela Canulescu (Organizer), Sara Lena Josefin Engberg (Organizer) & Jens Wenzel Andreasen (Organizer)

9 Feb 2022 → 11 Feb 2022

A Two-Step Approach Towards the Growth of WS₂ Monolayers from Solid Oxide Precursors

Denys Igorevich Miakota (Speaker), Ganesh Ghimire (Other), Rajesh Ulaganathan (Other), Raymond Unocic (Other), David Geohegan (Guest lecturer), Fabian Felix Bertoldo (Other), Kristian Sommer Thygesen (Other) & Stela Canulescu (Panel member)

9 Feb 2022 → 11 Feb 2022

Two-Dimensional Tungsten Disulfide Monolayers Synthesized from Solid Oxide Precursor Grown by Pulsed Laser Deposition

Denys Igorevich Miakota (Speaker), Ganesh Ghimire (Other), Rajesh Ulaganathan (Other), Raymond R. Unocic (Other), David B. Geohegan (Other), Sara Lena Josefin Engberg (Other), Fabian Felix Bertoldo (Other), Kristian Sommer Thygesen (Other) & Stela Canulescu (Other)

6 Dec 2021 → 8 Dec 2021

High-quality WS₂ monolayers growth via two-step approach based on pulsed laser deposition of tungsten oxide

Denys Igorevich Miakota (Speaker), Ganesh Ghimire (Other), David Geohegan (Other), Raymond R. Unocic (Other) & Stela Canulescu (Other)

26 Oct 2021 → 29 Oct 2021

Two-dimensional tungsten disulfide monolayers synthesized from epitaxial oxides grown by Pulsed Laser Deposition

Denys Igorevich Miakota (Speaker), Ganesh Ghimire (Other), Raymond R. Unocic (Other), Sara Lena Josefin Engberg (Other), Fabian Felix Bertoldo (Other), Jørgen Schou (Other), Kristian Sommer Thygesen (Other), David B. Geohegan (Other) & Stela Canulescu (Other)

31 May 2021 → 3 Jun 2021

Scientific Reports (Journal)

Stela Canulescu (Reviewer)

2021 → ...

Enabling high-efficiency chalcogenide/Si tandem solar cells: A comparative study of different chalcogenide top cells on a thermally resilient Si bottom cell

Filipe Mesquita Alves Martinho (Speaker), Alireza Hajjafarassar (Other), Nishant Saini (Other), Jes Larsen (Other), Sara Lena Josefin Engberg (Other), Eugen Stamate (Other), Jørgen Schou (Other), Charlotte Platzer-Björkman (Other), Lasse Vines (Other), Stela Canulescu (Other) & Ole Hansen (Other)

26 Nov 2020

Cu₂ZnSnS₄ solar cells via spin-coating: From DMSO ink to film

Sara Lena Josefin Engberg (Speaker), Mungunshagai Gansukh (Other), Filipe Mesquita Alves Martinho (Other), Rainer Küngas (Other), Eugen Stamate (Other), Ole Hansen (Other), Stela Canulescu (Other) & Jørgen Schou (Other)

28 May 2020

Towards atomically controlled growth of layered structures using PLD

Stela Canulescu (Guest lecturer)

10 Sep 2019

Band alignment at the CdS/ACZTS interface studied by soft X-ray spectroscopy

Stela Canulescu (Guest lecturer)

29 May 2019

A novel method for the synthesis of 2D materials

Stela Canulescu (Guest lecturer)

27 May 2019

Monolithic tandem solar cell potential of CZTS on TOPCon Si

Filipe Mesquita Alves Martinho (Invited speaker), Alireza Hajjafarassar (Other), Fredrik Stulen (Other), Sigbjørn Grini (Other), Simón López Mariño (Other), Moises Espindola Rodriguez (Other), Max Döbeli (Other), Stela Canulescu (Other), Eugen Stamate (Other), Mungunshagai Gansukh (Other), Sara Lena Josefin Engberg (Other), Ole Hansen (Other), Andrea Crovetto (Other), Lasse Vines (Other) & Jørgen Schou (Other)

24 Apr 2019

Monolithic CZTS-on-Silicon Tandem Solar Cells: Prospects and Challenges

Alireza Hajjafarassar (Speaker), Filipe Mesquita Alves Martinho (Other), Fredrik Stulen (Other), Sigbjørn Grini (Other), Denver C. Shearer (Other), Beniamino Iandolo (Other), Andrea Crovetto (Other), Simón López Mariño (Other), Stela Canulescu (Other), Jørgen Schou (Other) & Ole Hansen (Other)

8 Apr 2019

Investigation of Ti-based barrier layers for application in monolithic Silicon-Chalcogenide tandem solar cells

Alireza Hajjafarassar (Speaker), Filipe Mesquita Alves Martinho (Other), Sigbjørn Grini (Other), Fredrik Stulen (Other), Lasse Vines (Other), Denver C. Shearer (Other), Max Döbeli (Other), Andrea Crovetto (Other), Simón López Mariño (Other), Stela Canulescu (Other), Jørgen Schou (Other) & Ole Hansen (Other)

30 Nov 2018

Assessment of the photovoltaic properties of CZTS grown on representative Si solar cell structures for monolithic CZTS/Si tandem applications

Filipe Mesquita Alves Martinho (Speaker), Alireza Hajjafarassar (Other), Simón López Mariño (Other), Moises Espindola Rodriguez (Other), Mungunshagai Gansukh (Other), Stela Canulescu (Other), Eugen Stamate (Other), Sara Lena Josefin Engberg (Other), Ole Hansen (Other), Andrea Crovetto (Other) & Jørgen Schou (Other)

29 Nov 2018

Selective Area Growth of GaAs Nanowires on Silicon for photovoltaic applications

Elizaveta Lebedkina (Speaker), Dmitrii Viazmitinov (Other), Stela Canulescu (Other) & Elizaveta Semenova (Other)

24 Sep 2018 → 27 Sep 2018

Epitaxial growth of GaAs Nanowires on Silicon substrate for photovoltaic applications

Elizaveta Lebedkina (Speaker), Dmitrii Viazmitinov (Other), Stela Canulescu (Other) & Elizaveta Semenova (Other)

12 Sep 2018 → 14 Sep 2018

Development of CZTS absorbers by sputter deposition for application in CZTS/Si tandem photovoltaics: The Copper problem

Filipe Mesquita Alves Martinho (Speaker), Alireza Hajjafarassar (Other), Stela Canulescu (Other), Eugen Stamate (Other), Simón López Mariño (Other), Moises Espindola Rodriguez (Other), Mungunshagai Gansukh (Other), Sara Lena Josefin Engberg (Other), Ole Hansen (Other), Andrea Crovetto (Other) & Jørgen Schou (Other)

22 Jun 2018

Investigation of TiN and TiO₂ as barrier layer in Silicon/Chalcogenide Tandem Solar Cells

Alireza Hajjafarassar (Speaker), Filipe Mesquita Alves Martinho (Other), Andrea Crovetto (Other), Stela Canulescu (Other), Thomas Pedersen (Other), Simón López Mariño (Other), Jørgen Schou (Other) & Ole Hansen (Other)

19 Jun 2018

2017 MRS fall meeting & Exhibition

Stela Canulescu (Participant)

1 Dec 2017

Pulsed laser deposition (PLD) of the CZTS absorber for thin solar cells with up to 5.2-% efficiency

Jørgen Schou (Guest lecturer), Andrea Carlo Cazzaniga (Other), Stela Canulescu (Other), Andrea Crovetto (Other), Rebecca Bolt Ettliger (Other), Nini Pryds (Guest lecturer), Ole Hansen (Other), Chang Yan (Other), Kaiwen Sun (Other) & Xiaojing Hao (Other)

26 Jun 2017 → 30 Jun 2017

EMRS Spring meeting 2017

Jørgen Schou (Participant), Andrea Carlo Cazzaniga (Participant), Stela Canulescu (Organizer), Rebecca Bolt Ettliger (Participant), Nini Pryds (Participant), Ole Hansen (Organizer), Andrea Crovetto (Organizer), Chang Yan (Participant), Kaiwen Sun (Participant) & Xiaojing Hao (Participant)

23 May 2017

E-MRS Spring Meeting 2017

Stela Canulescu (Organizer)
22 May 2017 → 26 May 2017

High-energy deposition methods for CZTS and CTS solar cells

Jørgen Schou (Other), Rebecca Bolt Ettliger (Guest lecturer), Andrea Carlo Cazzaniga (Other), Stela Canulescu (Other), K. Normann (Other), F. Pattini (Other), Stefano Rampino (Other) & Eduardo Gilioli (Other)
22 May 2017 → 23 May 2017

Materials Research Society Spring Meeting 2017

Jørgen Schou (Organizer), Andrea Carlo Cazzaniga (Participant), Andrea Crovetto (Participant), Rebecca Bolt Ettliger (Participant), Sara Lena Josefin Engberg (Participant), Stela Canulescu (Participant), Nini Pryds (Participant), Ole Hansen (Participant), Chang Yan (Participant), Kaiwen Sun (Participant) & Xiaojing Hao (Participant)
17 Apr 2017 → 21 Apr 2017

Applied Physics A: Materials Science & Processing (Journal)

Stela Canulescu (Reviewer)
1 Jan 2017

Angular distribution of ablated species from a multicomponent target in vacuum and background gas

Stela Canulescu (Invited speaker)
29 Aug 2016 → 2 Sep 2016

EMRS Spring Meeting 2016

Stela Canulescu (Speaker)
4 May 2016

7th International Conference on Photo-Excited Processes and Applications

Stela Canulescu (Speaker)
16 Aug 2010

Investigating the fragmentation of C60 by Matrix Assisted Pulsed Laser Evaporation

Stela Canulescu (Speaker)
15 Aug 2010 → 20 Aug 2010

9th International Conference on Laser Ablation

Stela Canulescu (Speaker)
27 Sep 2007

Applied Physics A: Materials Science & Processing (Journal)

Stela Canulescu (Reviewer)
1 Jan 2007

Projects

CHALSOL: Chalcogenide solar cells of CZTS-Copper Zinc Tin Sulfide. A new, high-efficiency material for low-tech solar cells of earthabundant and environmentally friendly elements

Canulescu, S.
01/01/2013 → 31/12/2016

Controllable doping in two-dimensional materials

Canulescu, S. & Jensen, P. F.
05/09/2022 → 19/12/2022

Development of n-type buffer and window layer for low band gap Cu(In,Ga)Se₂ solar cells

Canulescu, S. & Gupta, H. M.

19/09/2022 → 18/02/2023

Fermi-level Depinning of Wafer-Scale MoS₂ using Functionalized CVD Graphene Interlayers

Canulescu, S. & Kalogeropoulos, A.

01/09/2022 → 01/02/2023

GDOES and HRXRD for the characterization of PLD TiO₂ thin films

Canulescu, S. & Ng, J. W.

10/01/2023 → 10/06/2023

Growth of Hexagonal-boron Nitride (h-BN) for Large-scale Graphene Devices

Chen, X., Bøggild, P., Booth, T., Canulescu, S., Berger, C., Coletti, C. & Shivayogimath, A.

Technical University of Denmark

01/09/2017 → 14/04/2021

III-V Nanowire Selective Area MOVPE Growth for High Efficiency Solar Cell

Lebedkina, E., Semenova, E. & Canulescu, S.

Technical University of Denmark

01/01/2018 → 31/12/2021

New thin solar cell films makes silicon cells better

Gansukh, M., Canulescu, S., Ou, H., Lippert, T., Redinger, A. & Schou, J.

Technical University of Denmark

01/04/2017 → 30/09/2020

New thin solar cell films makes silicon cells better

Martinho, F. M. A., Stamate, E., Canulescu, S., Seger, B., Lincot, D., Silvia, E. S. & Schou, J.

Forskningsrådsfinansiering

01/08/2017 → 04/11/2020

One-Dimensional (1D) structured materials for improved charge transport in Inorganic Thin-Film Photovoltaics

Canulescu, S.

01/03/2023 → 31/08/2026

One-Dimensional (1D) structured materials for improved charge transport in Inorganic Thin-Film Photovoltaics

Canulescu, S.

ODAAS: Optically Designed Anodized Aluminum Surfaces

Canulescu, S.

01/09/2011 → 01/09/2015

Sb₂S₃ solar cells

Canulescu, S. & Tsekou, A.

01/09/2022 → 01/02/2023

THz-enabled electron emission devices

Lange, S. J., Jepsen, P. U., Broeng, J., Canulescu, S., Hegmann, F. & Kärtner, F. X.

Technical University of Denmark

15/12/2016 → 04/03/2020

Two-dimensional Materials: Synthesis, Characterization, and Applications

Miakota, D. I., Canulescu, S. & Yartsev, A.

15/10/2019 → 14/10/2022

Versatile van der Waals heterostructures

Canulescu, S.

01/04/2019 → 30/09/2022