

# Stanford

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## Giulio D'Acunto

Postdoctoral Scholar, Chemical Engineering

### Bio

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#### HONORS AND AWARDS

- PhD Thesis Award, Oscar II, Lund University (April 2023)
- The Wallenberg Foundation Postdoctoral Scholarship at Stanford University, USA, The Wallenberg Foundation (Nov. 2022 - Oct. 2024)
- Finalist of Mort Traum Award, AVS-67 (Oct. 2021)
- Honourable mention, 32nd MAX IV User meeting (Sept. 2019)
- Poster Awards, 21st International Vacuum Congress - IVC (July 2021)
- Giovane Talento (Young talent), Fondazione Mario Negri (Jan. 2019)

#### PROFESSIONAL EDUCATION

- Master of Science, Universita Degli Studi Di Roma (2017)
- Doctor of Philosophy, Lunds Universitet (2022)
- Bachelor of Science, Universita Degli Studi Di Roma (2015)
- Ph.D, Lund University - Sweden , Physics (2022)
- MSc, Sapienza University of Rome - Italy , Physics (2017)
- BSc, Sapienza University of Rome - Italy , Physics (2015)

#### STANFORD ADVISORS

- Stacey Bent, Postdoctoral Research Mentor
- Stacey Bent, Postdoctoral Faculty Sponsor

### Publications

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#### PUBLICATIONS

- **Dynamics of precatalyst conversion and iron incorporation in nickel-based alkaline oxygen evolution reaction catalysts** *CELL REPORTS PHYSICAL SCIENCE*  
Mattinen, M., Schroder, J., D'Acunto, G., Ritala, M., Jaramillo, T. F., Stevens, M., Bent, S. F.  
2024; 5 (11)
- **In Vacuo XPS Study on Pt Growth by Atomic Layer Deposition Using MeCpPtMe<sub>3</sub> and N<sub>2</sub>/NH<sub>3</sub> Plasma** *JOURNAL OF PHYSICAL CHEMISTRY C*  
Li, J., Minjauw, M. M., Solano, E., D'Acunto, G., Shayesteh, P., Schnadt, J., Detavernier, C., Dendooven, J.  
2024

- **Using Iron L-Edge and Nitrogen K-Edge X-ray Absorption Spectroscopy to Improve the Understanding of the Electronic Structure of Iron Carbene Complexes.** *Inorganic chemistry*  
Guo, M., Temperton, R., D'Acunto, G., Johansson, N., Jones, R., Handrup, K., Ringelband, S., Prakash, O., Fan, H., de Groot, L. H., Hlynsson, V. F., Kaufhold, S., Gordivska, et al  
2024
- **<i>Operando</i> study of HfO<sub>2</sub> atomic layer deposition on partially hydroxylated Si(111)** *JOURNAL OF VACUUM SCIENCE & TECHNOLOGY A*  
Jones, R., D'Acunto, G., Shayesteh, P., Pinsard, I., Rochet, F., Bournel, F., Gallet, J., Head, A., Schnadt, J.  
2024; 42 (2)
- **Time evolution of surface species during the ALD of high-k oxide on InAs** *SURFACES AND INTERFACES*  
D'Acunto, G., Shayesteh, P., Kokkonen, E., de la Cruz, V., Rehman, F., Mosahebfard, Z., Lind, E., Schnadt, J., Timm, R.  
2023; 39
- **Bimolecular Reaction Mechanism in the Amido Complex-Based Atomic Layer Deposition of HfO<sub>2</sub>** *CHEMISTRY OF MATERIALS*  
D'Acunto, G., Tsyshevsky, R., Shayesteh, P., Gallet, J., Bournel, F., Rochet, F., Pinsard, I., Timm, R., Head, A. R., Kuklja, M., Schnadt, J.  
2023
- **Nitrogen plasma passivation of GaAs nanowires resolved by temperature dependent photoluminescence** *NANO EXPRESS*  
Irish, A., Zou, X., Barrigon, E., D'Acunto, G., Timm, R., Borgstrom, M., Yartsev, A.  
2022; 3 (4)
- **Atomic Hydrogen Annealing of Graphene on InAs Surfaces and Nanowires: Interface and Morphology Control for Optoelectronics and Quantum Technologies** *ACS APPLIED NANO MATERIALS*  
Mousavi, S., Liu, Y., D'Acunto, G., Troian, A., Caridad, J. M., Niu, Y., Zhu, L., Jash, A., Flodgren, V., Lehmann, S., Dick, K. A., Zakharov, A., Timm, et al  
2022
- **AP-XPS Study of Ethanol Adsorption on Rutile TiO<sub>2</sub>(110)** *JOURNAL OF PHYSICAL CHEMISTRY C*  
Schnadt, J., Jones, R., D'Acunto, G., Shayesteh, P., Rehman, F.  
2022
- **Graphene as an Adsorption Template for Studying Double Bond Activation in Catalysis** *JOURNAL OF PHYSICAL CHEMISTRY C*  
Boix, V., Xu, W., D'Acunto, G., Stubbe, J., Gallo, T., Stromsheim, M., Zhu, S., Scardamaglia, M., Shavorskiy, A., Reuter, K., Andersen, M., Knudsen, J.  
2022; 126 (33): 14116-14124
- **Following the Kinetics of Undercover Catalysis with APXPS and the Role of Hydrogen as an Intercalation Promoter** *ACS CATALYSIS*  
Boix, V., Scardamaglia, M., Gallo, T., D'Acunto, G., Stromsheim, M., Cavalca, F., Zhu, S., Shavorskiy, A., Schnadt, J., Knudsen, J.  
2022; 12 (16): 9897-9907
- **Hydrogen plasma enhanced oxide removal on GaSb planar and nanowire surfaces** *APPLIED SURFACE SCIENCE*  
Liu, Y., Yngman, S., Troian, A., D'Acunto, G., Jonsson, A., Svensson, J., Mikkelsen, A., Wernersson, L., Timm, R.  
2022; 593
- **In situ methods: discoveries and challenges: general discussion** *FARADAY DISCUSSIONS*  
Arrigo, R., Aureau, D., Bhatt, P., Buckingham, M. A., Counter, J. C., D'Acunto, G., Davies, P. R., Evans, D., Flavell, W. R., Gibson, J. S., Guan, S., Held, G., Isaacs, et al  
2022; 236 (0): 219-266
- **Role of Temperature, Pressure, and Surface Oxygen Migration in the Initial Atomic Layer Deposition of HfO<sub>2</sub> on Anatase TiO<sub>2</sub> (101)** *JOURNAL OF PHYSICAL CHEMISTRY C*  
D'Acunto, G., Jones, R., Ramirez, L., Shayesteh, P., Kokkonen, E., Rehman, F., Lim, F., Bournel, F., Gallet, J., Timm, R., Schnadt, J.  
2022
- **Oxygen relocation during HfO<sub>2</sub> ALD on InAs** *FARADAY DISCUSSIONS*  
D'Acunto, G., Kokkonen, E., Shayesteh, P., Boix, V., Rehman, F., Mosahebfard, Z., Lind, E., Schnadt, J., Timm, R.  
2022; 236 (0): 71-85
- **Time-Resolved APXPS with Chemical Potential Perturbations: Recent Developments at the MAX IV Laboratory** *Synchrotron Radiation News*  
Shavorskiy, A., Kokkonen, E., Redekop, E., D'Acunto, G., Schnadt, J., Knudsen, J.

2022; 35 (3)

- **Resonant X-ray photo-oxidation of light-harvesting iron (II/III) N-heterocyclic carbene complexes** *SCIENTIFIC REPORTS*  
Temperton, R. H., Guo, M., D'Acunto, G., Johansson, N., Rosemann, N. W., Prakash, O., Warnmark, K., Schnadt, J., Uhlig, J., Persson, P.  
2021; 11 (1): 22144
- **Thickness and composition of native oxides and near-surface regions of Ni superalloys** *JOURNAL OF ALLOYS AND COMPOUNDS*  
Larsson, A., D'Acunto, G., Vorobyova, M., Abbondanza, G., Lienert, U., Hegedus, Z., Preobrajenski, A., Merte, L. R., Eidhagen, J., Delblanc, A., Pan, J., Lundgren, E.  
2022; 895
- **Stroboscopic operando spectroscopy of the dynamics in heterogeneous catalysis by event-averaging** *NATURE COMMUNICATIONS*  
Knudsen, J., Gallo, T., Boix, V., Stromsheim, M., D'Acunto, G., Goodwin, C., Wallander, H., Zhu, S., Soldemo, M., Lomker, P., Cavalca, F., Scardamaglia, M., Degerman, et al  
2021; 12 (1): 6117
- **Gas Pulse-X-Ray Probe Ambient Pressure Photoelectron Spectroscopy with Submillisecond Time Resolution** *ACS APPLIED MATERIALS & INTERFACES*  
Shavorskiy, A., D'Acunto, G., de la Cruz, V., Scardamaglia, M., Zhu, S., Temperton, R. H., Schnadt, J., Knudsen, J.  
2021; 13 (40): 47629-47641
- **Area-selective Electron-beam induced deposition of Amorphous-BNx on graphene** *APPLIED SURFACE SCIENCE*  
Boix, V., Struzzi, C., Gallo, T., Johansson, N., D'Acunto, G., Yong, Z., Zakharov, A., Li, Z., Schnadt, J., Mikkelsen, A., Knudsen, J.  
2021; 557
- **Tuning oxygen vacancies and resistive switching properties in ultra-thin HfO<sub>2</sub> RRAM via TiN bottom electrode and interface engineering** *APPLIED SURFACE SCIENCE*  
Yong, Z., Persson, K., Ram, M., D'Acunto, G., Liu, Y., Benter, S., Pan, J., Li, Z., Borg, M., Mikkelsen, A., Wernersson, L., Timm, R.  
2021; 551
- **HIPPIE: a new platform for ambient-pressure X-ray photoelectron spectroscopy at the MAX IV Laboratory** *JOURNAL OF SYNCHROTRON RADIATION*  
Zhu, S., Scardamaglia, M., Knudsen, J., Sankari, R., Tarawneh, H., Temperton, R., Pickworth, L., Cavalca, F., Wang, C., Tissot, H., Weissenrieder, J., Hagman, B., Gustafson, et al  
2021; 28: 624-636
- **Comparative study of copper oxidation protection with graphene and hexagonal boron nitride** *CARBON*  
Scardamaglia, M., Boix, V., D'Acunto, G., Struzzi, C., Reckinger, N., Chen, X., Shivayogimath, A., Booth, T., Knudsen, J.  
2021; 171: 610-617
- **Atomic Layer Deposition of Hafnium Oxide on InAs: Insight from Time-Resolved in Situ Studies** *ACS APPLIED ELECTRONIC MATERIALS*  
D'Acunto, G., Troian, A., Kokkonen, E., Rehman, F., Liu, Y., Yngman, S., Yong, Z., McKibbin, S. R., Gallo, T., Lind, E., Schnadt, J., Timm, R.  
2020; 2 (12): 3915-3922
- **Polarization Effects of Transversal and Longitudinal Optical Phonons in Bundles of Multiwall Carbon Nanotubes** *JOURNAL OF PHYSICAL CHEMISTRY C*  
Ripanti, F., D'Acunto, G., Betti, M., Mariani, C., Bittencourt, C., Postorino, P.  
2019; 123 (32): 20013-20019
- **Channelling and induced defects at ion-bombarded aligned multiwall carbon nanotubes** *CARBON*  
D'Acunto, G., Ripanti, F., Postorino, P., Betti, M., Scardamaglia, M., Bittencourt, C., Mariani, C.  
2018; 139: 768-775