

DICHIARAZIONE SOSTITUTIVA DI ATTO DI NOTORIETÀ

(art. 47, D.P.R. 28 dicembre 2000 n. 445)

Il sottoscritto Eduard Chyhyrynets nato a Dnipropetrovsk (EE, Ucraina) il 30/12/1994 e residente a Padova (PD) in via Emilio Lovarini 2, Codice Fiscale CHYDRD94T30Z138K, consapevole di quanto previsto dagli articoli 75 e 76 del D.P.R. n. 445/2000 e successive modifiche in merito alla decadenza dai benefici concessi sulla base di dichiarazioni non veritiere, nonché alla responsabilità penale conseguente al rilascio di dichiarazioni mendaci e alla formazione e uso di atti falsi, sotto la propria responsabilità

DICHIARA LA VERIDICITÀ DI QUANTO SOTTO RIPORTATO:

Curriculum Vitae of Eduard Chyhyrynets

Education

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| 01/10/2019-ongoing | PhD in “Science and Engineering of Materials and Nanostructures” at the University of Padova, Italy.
Thesis title: <i>Exploring new polishing methods of surface preparation for accelerating resonant cavities.</i> |
| 01/09/2016-08/06/2018 | Master degree in “Chemical Technology and Engineering” at the National Technical University of Ukraine “Igor Sikorsky Kyiv Polytechnic Institute” (NTUU “Sikorskiy KPI”), voted with honours 100/100. GPA 4.0
Thesis title: <i>Chemical and Electrochemical Treatment of Copper coating for Particle Accelerators.</i> |
| 02/02/2017-30/06/2018 | Master course «Master in Surface Treatments for Industrial Applications» of First-level Short Specialization degree at the University of Padova, Italy
Thesis title: <i>Chemical and electrochemical treatments for accelerating cavities</i> |
| 01/09/2012-30/06/2016 | Bachelor degree in “Chemical technology” at the National Technical University of Ukraine “Kyiv Polytechnic Institute”, voted 96/100 GPA 3.63
Thesis title: <i>Electroplated coatings in machine building. Development technology of deposition of cadmium protective coating on small metal parts.</i> |
| 01/09/2001-31/05/2012 | Complete secondary education at specialized School Shevchenko in-depth study of English №82, Kyiv, Ukraine, voted 10,2/12 |

(Total duration of studies – 4+2 years for Bachelor and Master degrees)

Skills and abilities

- Languages** Ukrainian – native; English – B2; Italian – B2;
- Science skills:** SEM, EDS, profilometry,
Electropolishing, mechanical polishing, Green chemistry.
- IT-skills** Proficient user of office suite (word processor, spreadsheet, presentation software),
Good command of SolidWorks, Compass3D,
- Soft skills** Teamwork, Time-management, Problem solving, Work ethic, creativity.

Professional activity

- 06/2022 – ongoing** **Technological research grant (Assegno di ricerca)** at Legnaro National Laboratories - National Institute for Nuclear Physics (LNL-INFN)
"The study on the Plasma Electrolytic Polishing as technique of interest for the substrate preparation".
- 06/2019 – 06/2022** **Technological research grant (Assegno di ricerca)** at Legnaro National Laboratories - National Institute for Nuclear Physics (LNL-INFN)
"Optimization of the chemical, electrochemical and cleaning procedure for the surface preparation of the components of the DTL of ESS and the consequent quality control by SEM EDAX and XRD techniques".
- 06/2018 – 06/2019** **Starting fellow (Borsa di studio)** at Legnaro National Laboratories - National Institute for Nuclear Physics (LNL-INFN)
"Study of chemical and electrochemical-based surface treatments for thin films depositions, and design and manufacturing of a sputtering system".
- 04/2017– 03/2018** **Project Collaboration Contract** at CFR, workplace – LNL-INFN
"R&D on chemical and electrochemical treatments of metallic materials and surfaces"
- 06/2014 – 12/2014** **Project Collaboration Contract** with "Collini GmbH", workplace – NTUU "Sikorskiy KPI"
"Developing the technology of anticorrosive Ni-alloy coating that will be resistant in tropical aggressive climate".

Research activity

- 2022 – today** Member of a "Superconducting Alternative Materials for Accelerating cavities and haloscope Resonators for Axions" **SAMARA CSN5 research project at INFN**, responsible for Advanced surface preparations techniques.
- 2021 – today** Member of a "H2020 – Innovation Fostering in Accelerator Science and Technology" **IFAST CERN** research project, WP9: Innovative superconducting thin film coated cavities; responsible for substrate preparation and innovative methods of polishings of 6 GHz, 1.3 GHz, the QPR sample choke, 3d-printed cavities and resonators; <https://ifast-project.eu/>.
- 2019 – today** Development of plasma electrolytic polishing process of metals (Cu, Nb) and alloys (s.s., brass).
- 2019 – today** Low-radioactivity background cleaning of Cu MotherBoards for **DakrSide-20k collaboration**; <https://darkside.lngs.infn.it/>.

- 2019 – 2021** Member of a “H2020 – Thick Films for New generation resonant cavities” **ARIES CERN** research project, WP15: Thin film for Superconducting RF Cavities; responsible for optimisation and application of surface preparation techniques for the substrates of various shapes and types: planar samples, 6 GHz cavities, the QPR samples; <https://aries.web.cern.ch/> .
- 2017-2019** Research of techniques on surface treatments of Cu, Al, Nb, Stainless Steel materials including electropolishing of 6 GHz cavities and mechanical treatments: tumbling and vibro-tumbling.
- 2016** Electrochemical deposition of aluminium from non-aqueous solutions under normal conditions.
- 2014** Scientific research and development on developing the technology of anticorrosive Ni-alloy coating that will be resistant in tropical aggressive climate.
- 2012-2013** Scientific R&D on atmospheric volatile inhibitors anticorrosive properties of formed films based on plant raw materials products.

Responsibilities

- 06/2022** [INFN LNL Stage coordinator](#) of 1 student and subject “[Trattamenti di superficie per la ricerca e l'industria](#)” (Surface treatments for research and industry), at Surface Technologies and Superconductivity Service.
- 04/2022– 09/2022** INFN LNL tutor of University of Padova stage-student Federico Valerio.
- 01/2022– 09/2022** Co-supervisor of a student Luca Torassa of the UniPD master course in “Surface Treatments for Industrial Applications”.
- 01/2021– 09/2021** Co-supervisor of a student Roberta Caforio of the UniPD master course in “Surface Treatments for Industrial Applications”. Thesis title: “Development of the Copper cleaning protocol for Darkside-20k experiment”.
- 01/2019 – 10/2019** Co-supervisor of a student Luca Lazzaroni of the UniPD master course in “Surface Treatments for Industrial Applications”. Thesis title: Chemical Vibro-Tumbling (CVT) technique: a new approach to Cu surface finishing.
- 08-10/10/2018** [Member of the organizing committee](#) of the VIII international workshop “Thin Films and New Ideas for Pushing the Limits of RF Superconductivity”, LNL-INFN from 08/10/2018 to 10/10/2018.

Speaker at international conferences/workshops/poster

- 2021** [Talk](#) with the title: “Plasma electrolytic polishing technology as a modern, powerful, and green way to prepare surfaces for SRF” in the section “Nb/Cu Technology: Advanced Substrates” at the 9th International Workshop on “Thin films applied to Superconducting RF: Pushing the limits of RF Superconductivity”, Virtual, 15-18 March 2021
- [Poster](#) with the title: “Application of Plasma Electrolytic Polishing onto SRF substrates” at the “2021 International Conference on RF Superconductivity (SRF'21)”, Virtual, 28 June 2021 to 2 July 2021.
- [Poster](#) with the title: “Plasma Electrolytic Polishing as a promising treatment replacement of electropolishing in the copper and niobium substrate preparation for SRF” at the “2021 International Conference on RF Superconductivity (SRF'21)”, Virtual, 28 June 2021 to 2 July 2021.

- 2019 Poster with the title: "Vibro-tumbling as an Alternative to Standard Mechanical Polishing Techniques for SRF Cavities" at the "19th International Conference on RF Superconductivity (SRF'19)", Dresden, Germany, 30 June 2019 to 5th July 2019; [DOI: 10.18429/JACoW-SRF2019-TUP026](https://doi.org/10.18429/JACoW-SRF2019-TUP026).
- 2016 Talk with the title: "About the possibility of electrodeposition of aluminum from non-water solutions" in the session "Modern electrochemical technologies and equipment" at the "Worldwide scientific-technological conference.", Minsk (Belarus), 24-25 November 2016.
- 2015 Talk with the title: "Electrodeposition anticorrosive Ni coating, alloyed with copper" in the session "Electrochemistry" at the "VII International scientific conference of students and young scientists "Chemistry and modern technologies"", Dnipropetrovsk (Ukraine), 27-29 April 2015.

Publications

- 2022 R. Ries, [E. Chyhyrynets](#), et al., 'Surface quality characterization of thin Nb films for superconducting radiofrequency cavities', Supercond. Sci. Technol., vol. 35, no. 6, p. 075010, Jun. 2022, [DOI:10.1088/1361-6668/ac7261](https://doi.org/10.1088/1361-6668/ac7261).
- [E. Chyhyrynets](#), et al., Patent 'Soluzione chimica adatta alla lucidatura del niobio e delle sue leghe mediante Elettrolucidatura al Plasma' (Chemical solution suitable for polishing niobium and its alloys by Plasma Electrolytic Polishing) 13/05/2022, application n°. 102022000009899.
- 2021 R. Ries, [E. Chyhyrynets](#), et al., 'Improvement of the first flux entry field by laser post-treatment of the thin Nb film on Cu', Supercond. Sci. Technol., vol. 34, no. 6, p. 065001, Jun. 2021, [DOI: 10.1088/1361-6668/abf54d](https://doi.org/10.1088/1361-6668/abf54d).
- P. Agnes, [E. Chyhyrynets](#), et al., 'Sensitivity of future liquid argon dark matter search experiments to core-collapse supernova neutrinos', J. Cosmol. Astropart. Phys., vol. 2021, no. 03, p. 043, Mar. 2021, [doi: 10.1088/1475-7516/2021/03/043](https://doi.org/10.1088/1475-7516/2021/03/043).
- C. Pira, [E. Chyhyrynets](#), et al., "Plasma Electrolytic Polishing as a promising treatment replacement of electropolishing in the copper and niobium substrate preparation for SRF", in Proc. SRF'21, virtual conference, 2021, [THOTEV06](#). Pre-press release is available. ([Slides](#))
- [E. Chyhyrynets](#), et al., "Application of Plasma Electrolytic Polishing onto SRF substrates", in Proc. SRF'21, virtual conference, 2021, [SUPTEV002](#). Pre-press release is available. ([Poster](#))
- [E. Chyhyrynets](#), et al., "Cu/Nb QPR Surface Preparation Protocol in the Framework of ARIES Project", in Proc. SRF'21, virtual conference, 2021, [SUPTEV003](#). Pre-press release is available. ([Poster](#))
- A. Tsymbaliuk, [E. Chyhyrynets](#), et al., "Current Status of the ALPI Linac Upgrade for the SPES Facilities at INFN LNL", in Proc. SRF'21, virtual conference, 2021, [SUPCAV005](#). Pre-press release is available. ([Poster](#))
- V.A. Garcia Diaz, [E. Chyhyrynets](#), et al., "Thick Film Morphology and SC Characterizations of 6 GHz Nb/Cu Cavities", in Proc. SRF'21, virtual conference, 2021, [SUPCAV007](#). Pre-press release is available. ([Poster](#))
- D.B. Tikhonov, [E. Chyhyrynets](#), et al., "Investigation of SIS Multilayer Films at HZB", in Proc. SRF'21, virtual conference, 2021, [SUPFDV006](#). Pre-press release is available. ([Poster](#))
- D.B. Tikhonov, [E. Chyhyrynets](#), et al., "Investigation of SIS Multilayer Films at HZB", in Proc. SRF'21, virtual conference, 2021, [SUPFDV006](#). Pre-press release is available. ([Poster](#))
- D.A. Turner, [E. Chyhyrynets](#), et al., "Magnetic Field Penetration of Niobium Thin Films Produced by the ARIES Collaboration", in Proc. SRF'21, virtual conference, 2021, [SUPFDV007](#). Pre-press release is available. ([Poster](#))

O.B. Malyshev, [E. Chyhyrynets](#), et al., "Main Highlights of ARIES WP15 Collaboration", in Proc. SRF'21, virtual conference, 2021, [WEPFDV007](#). Pre-press release is available. ([Poster](#))

R. Valizadeh, [E. Chyhyrynets](#), et al., "Synthesis of Nb and Alternative Superconducting Film to Nb for SRF Cavity as Single Layer", in Proc. SRF'21, virtual conference, 2021, [FROFDV06](#). Pre-press release is available.

2019 C. Pira, [E. Chyhyrynets](#), et al., "Impact of the Cu Substrate Surface Preparation on the Morphological, Superconductive and RF Properties of the Nb Superconductive Coatings", in Proc. SRF'19, Dresden, 2019, THP041; [DOI: 10.18429/JACoW-SRF2019-THP041](#).

[E. Chyhyrynets](#), et al., "Vibro-tumbling as an Alternative to Standard Mechanical Polishing Techniques for SRF Cavities", in Proc. SRF'19, Dresden, 2019, TUP026; [DOI: 10.18429/JACoW-SRF2019-TUP026](#).

A. Abada, [E. Chyhyrynets](#), The FCC Collaboration et al., 'FCC Physics Opportunities: Future Circular Collider Conceptual Design Report Volume 1', Eur. Phys. J. C, vol. 79, no. 6, p. 474, Jun. 2019, [DOI: 10.1140/epjc/s10052-019-6904-3](#).

A. Abada, [E. Chyhyrynets](#), The FCC Collaboration et al., 'FCC-ee: The Lepton Collider: Future Circular Collider Conceptual Design Report Volume 2', Eur. Phys. J. Spec. Top., vol. 228, no. 2, pp. 261–623, Jun. 2019, [DOI: 10.1140/epjst/e2019-900045-4](#).

A. Abada, [E. Chyhyrynets](#), The FCC Collaboration et al., 'FCC-hh: The Hadron Collider: Future Circular Collider Conceptual Design Report Volume 3', Eur. Phys. J. Spec. Top., vol. 228, no. 4, pp. 755–1107, Jul. 2019, [DOI: 10.1140/epjst/e2019-900087-0](#).

A. Abada, [E. Chyhyrynets](#), The FCC Collaboration et al., 'HE-LHC: The High-Energy Large Hadron Collider: Future Circular Collider Conceptual Design Report Volume 4', Eur. Phys. J. Spec. Top., vol. 228, no. 5, pp. 1109–1382, Jul. 2019, [DOI: 10.1140/epjst/e2019-900088-6](#).

2016 [Chyhyrynets E.O.](#) About the possibility of electrodeposition of aluminium from non-water solutions / [E.O. Chyhyrynets](#), [O.V. Linyucheva](#), [M.V. Byk](#) // «Modern electrochemical technologies and equipment»: Worldwide scientific-technological conference., 24–25 November 2016 y.– Minsk, Belorussia, 2016. – P. 210–212. (In Russian)

2015 [Chyhyrynets E.O.](#) Electrodeposition anticorrosive Ni coating, alloyed with copper / [E.O. Chyhyrynets](#), [I.S. Pogrebova](#), [R.M. Redko](#), [N.A. Bylousova](#). // «Chemistry and modern technologies»: VII International scientific conference of students and young scientists., 27–29 April, 2015 y.– Dnipropetrovsk, 2015. – P. 58–59. (In Ukrainian)

2013 Vorobyova V.I. Study of anticorrosive properties of films of volatile inhibitors of atmospheric corrosion on the basis of plant raw materials products / [V.I. Vorobyova](#), [E.O. Chyhyrynets](#) // Science news "KPI". – 2013. – № 1. – P. 123-128. (In Ukrainian)

Annual Reports and other publications

2022 A. Tsymbaliuk, [E. Chyhyrynets](#), et. al., LNL Annual report 2021: [Current Status of the Copper High- \$\beta\$ QWR Cavities and Plates Niobium Deposition for the ALPI Upgrade Project in the Framework of the SPES Facility](#).

V. Garcia, [E. Chyhyrynets](#), et al., LNL Annual report 2021: [NbTi Coating onto Cu Axion Cavities](#).

2021 O. Malyshev, E. Chyhyrynets et al., "[ARIES Deliverable Report 15.4](#)", 2021.

[E. Chyhyrynets](#), et. al., LNL Annual report 2020: [Study on Plasma Electrolytic Polishing Technique in the Substrate Preparation for SRF](#).

V. Garcia, E. Chyhyrynets, et al., LNL Annual report 2020: [Current Status of 6 GHz DC Magnetron Sputtering Thick Film Deposition](#).

M. Zanierato, E. Chyhyrynets, et al., LNL Annual report 2020: [Optimization of the Liquid Diffusion Process to produce Nb₃Sn Films for Superconducting Radio Frequency Applications](#).

R. Caforio, E. Chyhyrynets, et. al., LNL Annual report 2020: [Status of Cleaning Protocol for the Copper Motherboards of the DarkSide-20k Experiment](#).

2020 O. Kugeleret, E. Chyhyrynets al., "[ARIES Deliverable Report 15.3](#)", 2020.

E. Chyhyrynets, et. al., LNL Annual report 2019: Motherboard Cleaning in the Framework of DarkSide20k Project; DOI: [10.13140/RG.2.2.12100.86404](#).

V. Garcia, E. Chyhyrynets et al., LNL Annual report 2019: Latest Research on 6 GHz Superconducting Resonant Cavities; DOI: [10.13140/RG.2.2.23006.05442](#).

E. Chyhyrynets, et. al., LNL Annual report 2019: Nb/Cu Quadrupole Resonator Surface Treatments; DOI: [10.13140/RG.2.2.20489.47200](#).

A. Tsybaliuk, E. Chyhyrynets, et. al., LNL Annual Report 2019; Production and Measurement at Low Temperature of High- β 160 MHz Nb/Cu QWR Superconductive Cavities for ALPI Upgrade in the framework of SPES Project [[Link](#)].

E. Chyhyrynets, et. al., LNL Annual Report 2018; Chemical Treatments Department of Material Science and Technological Service: Activity and Facility Update [[Link](#)].

2019 V. Garcia, E. Chyhyrynets, et. al., LNL Annual report 2018: [Update in Deposition of Nb Thick Films on Cu for 6 GHz Cavities](#).

S. Palazzese, E. Chyhyrynets, et. al., LNL Annual Report 2018; [QWR Cavities: Mechanical Treatment for Enhancing the Superconducting Properties](#).

2018 C. Pira, E. Chyhyrynets, et al., "[ARIES Deliverable Report 15.1](#)", 2018.

C. Pira, E. Chyhyrynets, et. al., LNL Annual Report 2017: [Nb Thick Films in 6 GHz Superconducting Resonant Cavities](#).

G. Caldarola, E. Chyhyrynets, et. al., LNL Annual Report 2017; [NbTi Coating of Microwave Resonant Cavities](#).

Autorizzo il trattamento dei dati personali contenuti nel mio curriculum vitae in base all'art. 13 del D. Lgs.

196/2003 e all'art. 13 del Regolamento UE 2016/679 relativo alla protezione delle persone fisiche con riguardo al trattamento dei dati personali.

Legnaro (PD), on 25/08/2022

