

## Resume of prof. Valter SERGO

Born in Udine (Italy) on September, 17th 1960

Italian citizenship, widow with 2 children.

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Present affiliation: Full professor of "Chemical Foundations of Technologies"

Engineering and Architecture Dept., University of Trieste ITALY

Vice-Rector, University of Trieste

### Academic and Professional Education

- High School Degree (final grading 60/60) 1979.
- University Degree (Laurea) in Chemistry, University of Trieste, (Final grading 110/110), 1985.
- Master of Science in Ceramic Engineering, Ohio State University (USA), 1989.
- Research Doctor in Materials Engineering, Italian Ministry of University and Scientific and Technological Research, 1989.
- Advanced School of Science and Technology of Glass, University of Padova (1990).
- Advanced School of Crystallography, Italian Association of Crystallography, Perugia, (1991).

### Professional positions

- Research and Development responsible, Colombin Inc., 1986-87.
- Research associate at the Materials Engineering and Applied Chemistry Department, University of Trieste (Italy) (1990-1998).
- Research associate at the Materials Department, University of California at Santa Barbara (USA), (1993).
- Research associate at the Materials Department, Kyoto Institute of Technology, Kyoto (Japan) (1995 and 1996).
- Associate Professor at the Department of Chemical Engineering, Materials, Raw Materials and Metallurgy (DICMMPM), University "La Sapienza" of Rome (Italy) (1998-2001).
- Visiting professor at the Technical University of Dresden, Germany (2001).
- Associate professor at the Materials Department of the University of Trieste (Italy) (2001-2005).
- Adjunct professor at Faculty of Health Sciences, University of Macau (China), 2018.
- Full professor of Chemical Foundations of Technologies, University of Trieste (2005-to date).

### Subjects of the Scientific Activity

During the first part of his career (1988-2005) the scientific activity of Prof. Sergio has been mainly devoted to the spectroscopic study of advanced materials for structural and functional applications. In this field he has collaborated in an international network developing a spectroscopic technique for the Non-Destructive assessment of lifetime of Turbine blades for aerospace engines. Also, in the field of materials characterization he has collaborated with CeramTec, a German company world leader in the market of ceramic prostheses, on the development of the most widely used ceramic head for hip Joint Prostheses.

After 2005, prof. Sergio has shifted his scientific interests toward the used of vibrational spectroscopy for biomedical applications. Presently his main scientific interest is in the use of spectroscopic techniques (Raman and Surface enhanced Raman spectroscopy) for the drug quantification and for large scale screening of cancer (breast and prostate cancer) and other diseases. In this field, prof. Sergio is the researcher of reference in Italy and one of the

reference scientists in Europe; it is noteworthy that this field is one of the few areas where Europe is clearly at the leading edge over USA and Far East, as it can be seen, for example, from the list of contributors to the prestigious FARADAY Discussions “Vibrational Spectroscopy in Life sciences” held in 2017 in Cambridge, UK.

#### Research responsibilities

He has been is the second director ((2007-2013) of CENMAT, a national Center of Excellence for Nanostructured MATERIALS established in 2003 and funded by MIUR, after winning a nationwide competitive call.

He has been and is still active as evaluator/reviewer for national and international projects (i.e.: 6th, 7TH , H2020 European Framework programs). As reviewer/evaluator for the Italian Ministry of University and Research, he has been involved in the realization of the largest scientific facility built in Calabria Region: the High performance STAR x-ray source for Materials Characterization.

He is member of the National Panel of Experts (Albo Nazionale Esperti) in Science and Technology of Materials (established by the Italian ministry for Research and University in 2003).

He has been the Principal Investigator of a research project funded by the National Research Council (Consiglio nazionale delle Ricerche) concerning a system for Pulsed Laser Deposition (1995).

He has been the Principal Investigator for a National PRIN project in 2006-2008. The National consortium was composed by researchers from the University of Trieste, University of Trento and University of Padova.

He has been the Italian responsible for a joint German-Italian VIGONI project devoted to the Spectroscopic Characterization of materials, with the technical University of Dresden as German counterpart.

He has been the one of the main proponents and responsible for the research unit of Raman Spectroscopy of the EU project BINASP, within the EU INFRAUEUR call for proposal (2006-2010). The total budget was about 2 million euro and the budget for the Raman Spectroscopy Unit was about 250.000 euro.

He has been responsible of the Raman Spectroscopy research Unit of the EU FP7 LONGLIFE project, with a budget of 250.000 euro. The project was devoted to the development of a new material for prosthetic application ([https://cordis.europa.eu/project/rcn/101734\\_en.html](https://cordis.europa.eu/project/rcn/101734_en.html)). Within the same project prof. Sergio has been nominated President of the Scientific Advisory Board.

He is presently member of the Scientific Advisory Board of the EU H2020 SISCERA project devoted to the industrial implementation of a ceramic material for dental applications (<http://www.siscera-project.eu/members-of-the-siscera-scientific-advisory-board/>).

He has been one of the main proponents of the EU COST project RAMAN4CLINICS. Within the same project prof. Sergio is the representative for Italy in the Management committee and the responsible of one of the 5 Working Group of the project , specifically the Working Group 1 devoted to “Therapeutic monitoring of anti-tumoral drugs and antibiotics in body fluids”. This COST project represents the most coordinated and widespread effort in Europe for the implementation of Raman Spectroscopy in the medical/clinical practice.  
(<https://www.raman4clinics.eu/working-groups/>). (2014-2018).

He has been recipient of a fund of 200.000 euro from the Italian Association for Cancer Research (Associazione Italiana Ricerca sul Cancro, AIRC), coordinating 6-7 researchers on activities devoted to quantification of Chemiotherapeutic Drugs for the Therapeutic Drug Monitoring of patients with tumors (2015-2017).

In 2017 he has been awarded an ERASMUS MUNDUS grant within the EURASIACT project to spend one month as visiting professor at the University of Macau, China

He has ongoing collaborations, with joint researchers, with 2 research hospitals on the subject of i) Therapeutic Drug Monitoring in pediatric Emato-Oncology (with Children Hospital “Burlo Garofolo”, Trieste Italy) and ii) in Cancer Screening (with research Cancer Hospital Centro Riferimento Oncologico, Aviano Italy).

Prof. Sergio has had or has in progress collaborations with the following research centers, among others:

- Bayreuth University (Germany);
- Technical University of Dresden (Germany);
- Max Planck Institute of Stuttgart (Germany);
- University of California at Santa Barbara (USA);
- Colorado School of Mines (USA);
- Ohio State University (USA);
- Kyoto Institute of Technology (Japan);
- Technical University of Toyohashi (Japan);
- Toray Research Center (Otsu, Japan);
- Seoul National University (Korea);
- Korean Institute for Science and Technology;
- Materials laboratory of Petten (Holland)
- Pediatric Hospital and Research center IRCCS Burlo Garofolo, Trieste;
- Centro Riferimento Oncologico (Cancer Hospital) IRCCS Aviano;
- Institute of Chinese Medicine, Macau University (China).
- Institute of Photonics Jena, Germany.

He has authored or coauthored about 110 scientific papers, including 5 comprehensive reviews. From a Bibliometric point of view his H-index ranges (as of October 2023) from 39 (Scopus) to 44 (Google Scholar), with a citation count from over 5000 to more than 7000. He is listed among the Top Italian Scientists in the field of Materials and Nano Sciences ([http://www.topitalianscientists.org/top\\_italian\\_scientists\\_VIA-Academy.aspx?Cerca=Sergo](http://www.topitalianscientists.org/top_italian_scientists_VIA-Academy.aspx?Cerca=Sergo)). Noteworthy, he has an H-100 index (publications with more than 100 citations) of 16, which indicates the very high impact of some publications, categorizing them as “classics” in their field.

During his career, prof. Sergio has given worldwide over 60 invited lectures, both in academy and industry. Limiting the list to the last years, seminars and lectures have been given at, among others: ITMO University, Saint Petersburg Russia, Hong Kong University of Science and Technology, Macau University China, Harvard University USA, FARADAY Discussion Cambridge UK, Institute of Photonics Jena Germany, Plenary invited lecture at the 2016 Nanosciences and Nanotechnology congress in Rome Italy (<https://agenda.infn.it/contributionListDisplay.py?confId=11337>), Invited lecturer at the European school of Bioceramics 2015 Madrid Spain. Invited plenary lecture at the 2018 annual meeting of the Philippine Physical Society (Palawan, Philippines).

#### Industrial liaisons

Prof. Sergio in 2005 has received one of the first endowed chair in Italian universities: the academic chair was endowed by SACMI, world leader in the market of industrial equipment for the ceramic industry.

Upon indication of the presidency of the Italian administrative region Friuli-Venezia Giulia, he has been appointed president of the administration board of the industrial incubator BIC Incubatori FVG (<http://www.incubatori.fvg.it/>) (2004-2016). At the time of the presidency, the incubator hosted 35 spin-offs and start-ups with more than 300 employees, comprehensively.

Overall he has conducted industrial research with, among others: Siemens Germany, SACMI Italy, SNECMA France, CeramTec Germany, DOCERAM Germany, Pratt and Whitney USA.

#### Scientific awards

- ) In 1993 Prof. Sergio has been awarded a NATO-National Research Council fellowship.
- ) In 1996 he has been the recipient (ex aequo) of the best publication award from the Japanese Ceramic Society.
- ) In 2005 he has been co-recipient of the award for the best contribution to the 15th European meeting of the Societies for Biomaterials (Bioactive porous scaffold for tissue engineering application: composition and immersion time effects on the degradation processes)
- ) In 2009 he has been co-recipient of the award for the best contribution at the XIII European conference on Spectroscopy of Biological molecules (Chemical imaging of articular cartilage with Raman mapping).

October, 2023

A handwritten signature in black ink, appearing to read "Walter Sergio". The signature is written in a cursive, flowing style with some loops and flourishes.