

## PERSONAL INFORMATION

Massimo Bersani

 Via G.B. de Gaspari n.53 Levico Terme 38056 Italy

 +393316452164

 bersani@fbk.eu

Male |  | Italian

## WORK EXPERIENCE

1/1/2024-presente

### **Researcher Senior at FBK, Unit Leader of Materials and Topologies for Sensors and Devices Line (MTSD) of the Centre of Sensors and Devices (FBK-S&D).**

Fondazione Bruno Kessler, Via Sommarive 18, 38123 Povo (Tn), Italy. <https://www.fbk.eu/en/>

Research unit responsible  
Management of 25 Researchers/technicians  
Research Fields:  
Materials Characterization:  
Environmental Sensor  
Quantum Technologies  
Superconductivity

1/1/2021-31/12/2023

### **Researcher Senior at FBK, Program Manager of the Centre of Sensors and Devices (FBK-S&D), working in the direction staff.**

Fondazione Bruno Kessler, Via Sommarive 18, 38123 Povo (Tn), Italy. <https://www.fbk.eu/en/>  
Industrial research activities coordination  
Support to management activities of the FBK-S&D  
Management of the industrial and institutional partnerships;  
Member of management board of the FBK-S&D  
Valuable activity in projects writing  
Definition and implementation of FBK-S&D marketing plan  
Direct involvement in financed projects

1/1/2017-12/12/2020

### **Researcher Senior at FBK, Program Manager of the Centre Materials and Microsystems (FBK-CMM), working in the direction staff.**

Fondazione Bruno Kessler, Via Sommarive 18, 38123 Povo (Tn), Italy. <https://www.fbk.eu/en/>  
Industrial research activities coordination  
Support to management activities of the FBK-S&D  
Management of the industrial and institutional partnerships;  
Member of the management board of the FBK-S&D  
Valuable activity in project writing  
Definition and implementation of FBK-S&D marketing plan  
Direct involvement in financed projects

2018-2020

### **Professor of Elements of Condensed Matter Physics**

Engineering department, La Sapienza University Rome Italy. 30 hours. <https://www.uniroma1.it/it/>

10/8/2017-18/10/2017

### **Visiting Professor at UnoChapecò**

Unochapecò Santa Catarina Brasil, <https://www.unochapeco.edu.br/>

Teaching:

- 45-hours course: Nanoscience and Nanotechnology
- 24-hours course: Innovation Management
- 8-hours course: Project Planning and Elaboration
- 20-hour course: Entrepreneurship with innovation

- 1/3/2014-1/1/2017 **Researcher Senior at FBK, strategic marketing responsible for MNF (Micro and Nano Facility)**  
Fondazione Bruno Kessler, Via Sommarive 18, 38123 Povo (Tn), Italy. <https://www.fbk.eu/en/>  
Industrial research activities coordination  
Coordination of marketing activities  
Management of the industrial and institutional partnerships;  
Member of the management board of the FBK-S&D  
Direct involvement in financed projects
- 2014-present **Advisory board member of the FIM department at the University of Modena**  
Unimore, <https://www.unimore.it/>
- 20/6/2014-20/9/2014 **Visiting Researcher at the University of Maryland USA**  
Maryland University, College Park [www.umd.edu](http://www.umd.edu)  
▪ Research activity on Atomic Layer Deposition;  
▪ He Microscopy  
▪ Patent Writing
- 2008-2014 **Researcher Senior at FBK (MiNALab (Mico Nano Analytical Laboratory; research unit responsible)**  
Fondazione Bruno Kessler, Via Sommarive 18, 38123 Povo (Tn), Italy. <https://www.fbk.eu/en/>;  
<http://minalab.fbk.eu/>  
Material characterization research  
Development of new analytical methodology  
Analytical facility coordination  
Nanomaterial and nanotechnology research  
Researchers coordination (around 12 years man)  
Financed project coordination;  
Budget responsibility
- 2003-2008 **Researcher R2 level at ITC-irst, MAME line (Materials and Analysis for Microelectronics) responsible Physical and Chemical Surfaces and Interfaces Division .**  
ITC-irst, Via Sommarive 18, 38123 Povo (Tn), Italy.  
Research on semiconductor technology  
SIMS analyst  
Material characterization research  
Development of new analytical methodology  
Activity for industrial projects and service
- 1997-2003 **Research scientist of the Physical and Chemical Surfaces and Interfaces Division at ITC-irst**  
ITC-irst, Via Sommarive 18, 38123 Povo (Tn), Italy  
Research on semiconductor technology  
SIMS analyst  
Material characterization research
- 1994-1997 **Postdoctoral fellow SGS-Thomson Microelectronics at CMBM (Materials Center and Medical Biophysics) Advanced Material Division**  
ST-Microelectronic Agrate Brianza  
Research on semiconductor technology  
SIMS analyst
- 1993-1994 **Grant at Physics Department of Modena University, Italy**  
Unimore, <https://www.unimore.it/> Physic Department  
▪ Research on materials characterization

## EDUCATION AND TRAINING

May 2015 December 2016

### Executive Master in Business Administration

University Luiss Guido Carli Rome  
(<https://businessschool.luiss.it/offerta-formativa/executive-program/>)

Core courses:

Accounting; Corporate Governance e compliance; Financial Accounting, People management;  
Corporate organization; Project management; Corporate Strategy; Marketing; Operational;  
Business Plan Elaboration

December 1993

### Physic Degree

University of Modena and ReggioEmilia  
(<https://unimore.it>)

## PERSONAL SKILLS

Mother tongue(s)

Italian

Other language(s)

English	C2
French	A1
Portuguese	B2

Job-related skills

### Project management:

EngSurf-Twin H2020-EU.4.b. - Twinning of research institutions (about 900.000 euro funding) FBK responsible

UNINANO Erasmus+ (about 200.000 euro funding) FBK responsible

EU ANNA FP6 I3 (about 6.000.000 euro funding), Coordinator

EU Impulse FP 5 (about 2.300.00 euro funding), ITC-irst responsible

EU-ILSIMS FP5 (about 1.000.000 euro funding), ITC-irst responsible

Responsible for several regional financed projects

Responsible for several contracts with industries for a total funding of over 2.000.000 euro

Technical competences

Analytical methodology development for dopant distribution determination in semiconductor materials. The work is focused on ultra-shallow junctions to determine dopant diffusion mechanisms and depth distribution.

Extraction of new knowledge from high dimensional mass spectrometry data through multivariate data analysis techniques to solve specific problems in the agricultural and food chemistry field

Application of surface analytical multi-techniques approach to fully characterize industrial coating for metal substrates. Support Industrial research and development by using industrial deposition equipment joint to state-of-the-art analytical approach

Physics and Materials Science in semiconductor technology. Experimental characterization of semiconductors, interfaces, and microelectronics materials.

Development of innovative X-ray diffraction instrumentation. Management of Prototype instruments realization.

Multitechnique analytical approaches on various surface science applications

Analytical industrial service

Corporate Governance e compliance

People management; Corporate organization;

Project management;

Corporate Strategy;

Marketing;

Business Plan Elaboration

### Events organization

2024 Member of Organizing committee of Nanoinnovation Conference;

<https://www.nanoinnovation2024.eu/home/index.php/organization/committees/organizing->

#### committee

2023 Member of Organizing committee of Nanoinnovation Conference;  
<https://www.nanoinnovation2023.eu/home/index.php/organization/committees/organizing-committee>  
 2022 Member of Organizing committee of Nanoinnovation Conference;  
<https://www.nanoinnovation2022.eu/home/index.php/organization/committees/organizing-committee>  
 2021 Member of Organizing committee of Nanoinnovation Conference;  
<https://www.nanoinnovation2021.eu/home/index.php/organization/committees/organizing-committee>  
 2020 Member of Organizing committee of Nanoinnovation Conference;  
<https://www.nanoinnovation2020.eu/home/index.php/organization/committees/organizing-committee>  
 2019 Member of Organizing committee of Nanoinnovation Conference;  
<http://www.nanoinnovation2019.eu/index.php/committees/organizing-committee>  
 Local committee chairman of SIMS XVIII -18th International Conference on Secondary Ion Mass Spectrometry; Riva del Garda from 18th to 23rd September 2011; <http://www.simsxviii.org>.  
 Organizer of ATHENIS WORKSHOP "IC Technology for Harsh Automotive Applications" December 15, 2010 Fondazione Bruno Kessler, Povo, Trento  
 Co-organizer of ALTECH workshop 216 ECS Meeting | Wien, Austria | October 4-9, 2009  
 Co-Organizer of European Workshop on "Recent Advances in Ultra Shallow Junctions", 24-25 November 2004, Povo, Trento, Italy  
 Scientific committee member of symposium B "Material science issues in advanced CMOS source-drain engineering" at E-MRS 2004 Spring Meeting Strasbourg France

#### **Mentoring Experience**

DfP technologies producing X-ray instrumentation; role business and innovation project consultant  
 Industrial projects consultant (including SME in H2020) Novurania  
 Start up Indivenire, role business consultant  
 Start up SMETRO; role business consultant

#### **2018 Full professor Qualified**

#### **Tutoring**

January 2002 - March 2003: PhD Enrico Boscolo Marchi  
 March 2003- March 2006: Post-doc Giancarlo Peponi  
 March 2004- March 2007: Post-doc Salvatore Gennaro  
 May 2010-May 2013 : Post-doc Florian Meirer  
 March 2018 – November 2020: Post doc Simone di Mare

#### **ADDITIONAL INFORMATION RELEVANT TO QUANTUM SCIENCE AND TECHNOLOGY**

Industrial collaborations

*AIRI representative member*

Research products	Author of more than 150 publications with an h-index of 24.
Publication Examples	<p><b>Transient enhanced diffusion of arsenic in silicon</b> S Solmi, M Ferri, M Bersani, D Giubertoni, V Soncini Journal of applied physics 94 (8), 4950-4955. <a href="https://doi.org/10.1063/1.1609640">https://doi.org/10.1063/1.1609640</a></p> <p><b>Mechanical properties and strain monitoring of glass-epoxy composites with graphene-coated fibers</b> H Mahmood, L Vanzetti, M Bersani, A Pegoretti Composites Part A: Applied Science and Manufacturing 107, 112-123, <a href="https://doi.org/10.1016/j.compositesa.2017.12.023">https://doi.org/10.1016/j.compositesa.2017.12.023</a></p> <p><b>Vacancy-engineering implants for high boron activation in silicon on insulator</b> AJ Smith, NEB Cowern, AJ Smith, NEB Cowern, R Gwilliam, BJ Sealy, B Colombeau, EJH Collart, Salvatore Gennaro, Damiano Giubertoni, Massimo Bersani, Mario Barozzi, Applied physics letters 88 (8), 082112. <a href="https://doi.org/10.1063/1.2178487">https://doi.org/10.1063/1.2178487</a></p> <p><b>Correlation of local structure and electrical activation in arsenic ultrashallow junctions in silicon</b> D. Giubertoni, G. Pepponi, S. Gennaro, M. Bersani, M. A. Sahiner, S. P. Kelly, R. Doherty, M. A. Foad, M. Kah, K. J. Kirkby, J. C. Woicik, P. Pianetta, journal of applied physics 104 (10), 103716. <a href="https://doi.org/10.1063/1.3026706">https://doi.org/10.1063/1.3026706</a></p> <p><b>Luminescence from Erbium-Doped Silicon Epi Layers Grown by Liquid-Phase Epitaxy</b> M. Bersani S Pizzini, M Donghi, S Binetti, G Wagner Journal of the Electrochemical Society 145 (1), L8-L11. <a href="https://doi.org/10.1149/1.1838198">https://doi.org/10.1149/1.1838198</a></p> <p><b>Effect of graphene nanoplatelets structure on the properties of acrylonitrile–butadiene–styrene composites</b> S Dul, L Fambri, C Merlini, GMO Barra, M Bersani, L Vanzetti, A Pegoretti Polymer Composites 40 (S1), E285-E300. <a href="https://doi.org/10.1002/pc.24645">https://doi.org/10.1002/pc.24645</a></p> <p><b>Depth profile investigations of silicon nanocrystals formed in sapphire by ion implantation</b> S Yerci, I Yildiz, M Kulakci, U Serincan, M Barozzi, M Bersani, R Turan Journal of Applied Physics 102 (2), 024309. <a href="https://doi.org/10.1063/1.2756622">https://doi.org/10.1063/1.2756622</a></p> <p><b>Real-time observation and optimization of tungsten atomic layer deposition process cycle</b> W. Lei, L. Henn-Lecordier, M. Anderle, G. W. Rubloff, M. Barozzi and M. Bersani. JVST B 24, 780 (2006) <a href="https://doi.org/10.1116/1.2184320">https://doi.org/10.1116/1.2184320</a></p> <p><b>Nanotechnology 2: characterization and applications</b> Mustafa Ersöz, Mine Sulak, Massimo Bersani, Arzum Işıtan, Meltem Balaban, Zeha Yakar, Cumhuri Gökhan Ünlü, Volkan Onar Book. Editor: Pamukkale Üniversitesi Yayını 2018</p> <p><b>Omnidirectional and broadband photon harvesting in self-organized Ge columnar nanovoids</b> D Chowdhury, S Mondal, M Secchi, MC Giordano, L Vanzetti, M Barozzi, M. Bersani, D. Giubertoni, F. Buatier de Mongeot. Nanotechnology 2022</p> <p><b>Quality management system and accreditation of measurements in a surface science laboratory: the case study of MiNALab.</b> E Iacob, L Vanzetti, S Gennaro, F Pecoraro, D Giubertoni, M Barozzi, M. Bortolotti, G. Pepponi, M. Fedrizzi, M. Bersani. Surface and Interface Analysis 46 (10-11), 927-930. <a href="https://doi.org/10.1002/sia.5490">https://doi.org/10.1002/sia.5490</a></p> <p><b>Polyethylene wax/EPDM blends as shape-stabilized phase change materials for thermal energy storage</b> A Dorigato, MV Ciampolillo, A Cataldi, M Bersani, A Pegoretti Rubber Chemistry and Technology 90 (3), 575-584. (2017) <a href="https://doi.org/10.5254/rct.82.83719">https://doi.org/10.5254/rct.82.83719</a></p> <p><b>Interphase exchange coupling in Fe/Sm–Co bilayers with gradient Fe thickness</b> Ming-hui Yu, Jason Hattrick-Simpers, Ichiro Takeuchi, Jing Li, Zhong Lin Wang, J Ping Liu, SE Lofland, Somdev Tyagi, JW Freeland, Damiano Giubertoni, Massimo Bersani, Mariano Anderle Journal of applied physics 98 (6) (2005). <a href="https://doi.org/10.1063/1.2042529">https://doi.org/10.1063/1.2042529</a></p> <p><b>Nondestructive dose determination and depth profiling of arsenic ultrashallow junctions with total reflection X-ray fluorescence analysis compared to dynamic secondary ion mass</b> Giancarlo Pepponi, Christina Strel, Peter Wobrauschek, N Zoeger, K Luening, P Pianetta, Damiano Giubertoni, Mario Barozzi, Massimo Bersani. Spectrochimica Acta Part B: Atomic Spectroscopy 59 (8), 1243-1249 (2004). <a href="https://doi.org/10.1016/j.sab.2004.04.014">https://doi.org/10.1016/j.sab.2004.04.014</a></p>

**Quantitative depth profiling of boron and arsenic ultra low energy implants by pulsed rf-GD-ToFMS**

Lara Lobo, Beatriz Fernández, Rosario Pereiro, Nerea Bordel, Evgeny Demenev, Damiano Giubertoni, Massimo Bersani, Philipp Hönicke, Burkhard Beckhoff, Alfredo Sanz-Medel. Journal of Analytical Atomic Spectrometry 26 (3), 542-549 (2011). DOI: 10.1039/c0ja00197j