

# Gabor Harsanyi

## Curriculum Vitae - 2022

### Personal data:

Born March 20, 1958, in Budapest, Hungary

Sex: male

Citizenship: Hungarian

### Contact:

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Hungarian Doctoral Council: [https://doktori.hu/index.php?menuid=192&sz\\_ID=1134&lang=EN](https://doktori.hu/index.php?menuid=192&sz_ID=1134&lang=EN)

Publication background in the Hungarian Scientific Bibliography:

<https://m2.mtmt.hu/api/publication?cond=authors;in;10001230&cond=category.mtid;eq;1&&page=1&labelLang=eng>

**Present job:** 2001- present **Full professor** at the Department of Electronics Technology, Budapest University of Technology and Economics

### Education (dates, degrees, issued by), academic degrees, and titles:

2001 - DSc. (Doctor of Science) - Hungarian Academy of Sciences, Microelectronics and Electronics Technologies

2000 - dr. habil. - Budapest University of Technology and Economics, Faculty of Electrical Engineering

1992 - Ph.D., Budapest University of Technology and Economics, Faculty of Electrical Engineering

1992 - CSc., (Candidate of Science – a degree equal to PhD) - Hungarian Academy of Sciences,

1984 - "dr.univ." - Technical University of Budapest, Microelectronics Technology

1983 - Certificate Engineer specialized in Electronics Technology - Technical University of Budapest, Faculty of Electrical Engineering

1981 - M.Sc. - 1981 - Technical University of Budapest, Faculty of Electrical Engineering

**Field of specialization:** Electronics Technology

### Main research and innovation fields:

- a. Reliability and failure analysis of high-density electronic circuit modules, especially mechanism of the electrochemical migration
- b. Sensors in biomedical and environment monitoring applications, especially sensors based on thick and thin-film technologies combined with the advantages of functionalized polymers.

### Career/Employment (dates, employers, positions, activities):

1984 - Present: Budapest University of Technology and Economics, Dept. of Electronics Technology, more detailed:

2001- present: Full professor, lecturer of the curricula Electronics Technology and Material Science (English and Hungarian, undergraduate), Sensor Principles and Technologies (graduate), Sensors in Biomedical Applications (graduate),  
2003 – 2021: Head of Dept., responsible and establisher of an 800 sqm area clean laboratory system for teaching and research of Electronics Technology areas including printed wiring boards, thick- and thin-film technologies, electronic assembling, sensor technologies, reliability testing, failure analysis, nanotechnologies.  
1992 - 2001: Associate Professor, Head of the Sensors' Laboratory, initiator of the education and research in "sensors in biomedical and environment protection" areas, establisher of web-based education materials of "sensorics"  
1984 -1992 Assistant Professor, development of student labs in electronics technology  
1981 - 84: Microelectronics Company, Budapest, Hungary, Leader of Thick and Thin Film Sensor Research, Development of thick film humidity and gas sensors and related electronic appliances.

**Languages:** Hungarian – native, English – fluent speaking and writing, German - advanced level exam, Russian – university exam

#### **Memberships:**

Committee of Electron Devices and Technologies, Hungarian Academy of Sciences – past secretary and past president of the committee served 12 years  
Hungarian Academy of Engineering  
National Electronics Society of Hungary (NESH, MELT) – founder member  
IEEE (Institute of Electrical and Electronics Engineers) Components, Packaging and Manufacturing Society (CPMT), recently named as Electronics Packaging Society (EPS), a senior member of the Society  
International Microelectronics and Packaging Society (IMAPS): founder and past president of the Hungarian Chapter, a fellow and lifetime member of the society

#### **Scholarships/awards:**

**2022 Széchenyi Prize:** named after István Széchenyi (regarded as the biggest Hungarian, is a prize given in Hungary by the state in recognition of those who have made an outstanding contribution to academic life in Hungary. This is the **highest level prize available for people working in the STEM area.**

**2014 Officer's Cross Order of Merit of Hungary:** is the **fourth highest State Order of Hungary.** It is awarded to those who, through their exceptionally high-quality work, extraordinary performance, or outstanding achievement, gain timeless merit.

**2012 Patent Standard Prize of the Hungarian Academy of Sciences:** given for the outstanding innovation activities and creation of patents.

**2011 "Denis Gabor" Award:** this award is named after the Hungarian Nobel Laureate Denis Gabor, and it can be donated to professionals who have created significant scientific or technical-intellectual creations, thus contributing to the preservation of environmental values, and contributing greatly to the innovation activities of their institution.

**1997 "Széchenyi" Professor Scholarship Award:** a **4 years scholarship for outstanding university teachers and researchers working on DSc theses.**

1999 Faculty Scholarship Award of IEEE CPMT for the invention of special web-based education materials.

1998 Fellowship Award of the International Microelectronics and Packaging Society (IMAPS)

1992 Best paper of Session Award at the International Symposium on Microelectronics

**Leaves/research abroad:**

- 1996: 6 months research scholarship in the USA at the „Florida International University” (COBASE NSF-NRC)
- 1991: one-year DAAD scholarship in Germany „Fraunhofer Institut
- 1990: one month study in Japan: „Production Management”

**Principal investigator, coordinator, and participant in 33 international (EU, USA-NSF, bilateral), and domestic Hungarian projects. The most relevant examples are:**

1. METIS, (MicroElectronics Training, Industry and Skills) –612339-EPP-1-2019-1-DE--EPPKA2-SSA-B; Erasmus+ Sector Skills Alliances, 2020-2024
2. MECA (MicroElectronics Cloud Alliance) Erasmus+ Knowledge Alliance 562206-EPP-1-2015-1-BG-EPPKA2-KA, 2016-2020
3. Eurotraining Provision of a European Training Infrastructure FP7-ICT-2011-8 No. 316526, 2015-2019
4. Hungarian KMR, Developing Integrated Electronic Components With Nanotechnology Solutions, KMR12-1-2012-0406, 2011-2016
5. Elect2eat: E-learning based training in the topic of Electronic Assembling Technologies, (LLP-LdV-TOI-2007-HU-016), 2007-2011
6. DINAMICS EU FP6 026804-2 IP, Diagnostic type Nano- and Microsensors 2007-2011
7. Eurotraining MST, ICT-2007.3.6: No.223849, Establishment of Microsystems training requirements in Europe, 2008-2010
8. Eurotraining Nano, EU FP7, CSA No. 211806, Establishment of Nanosystems and related technologies training requirements in Europe, 2007-2010
9. SPE-SAFE, Jedlik OM-00087/2008, “ Microfluidic device for specimen on-site stabilization by extraction with self-reporting quality control data monitoring, 2007-2010
10. DVT-IMP, EU FP6, STREP DVT-IMP 034256, Deep Vein Thrombosis-Impedimetric Microanalysis System, 2006-2009
11. MicroBUILDER EU FP6, An integrated modular service for mixed microtechnology microBuilder, 2006-2009
12. RASP EU FP6, IP-044515, Rapid SPR for parallel detection of pathogens in blood 2007-2009
13. MINOS EU FP6, SSA015707, European Network of Micro- and Nanosystem Technologies, 2005-2008
14. CLEAN, EU FP6, 2004-IST-026980-IP-CLEAN, Power Loss Control in NanoCMOS SoC structures, 2006-2008
15. Leadout EU FP6, COLL-CT-2004-500454, „Low-Cost Lead-Free Soldering Technology, 2004-2007
16. EMCI EU FP6, COOP-CT-2003-508172, Injection Technnology of Embedded Microjoints, 2004-2006
17. Flexnolead EU FP6, COOP-CT-2004-513163, Lead-Free Soldering on Felxible Circuit Substrates, 2004-2006
18. Eurotraining EU FP5, IST-2001-37348, Professional training system for microsystems in Europe, 2002-2004
19. CCMeSys EU FP5, IST-2001-37496, Competence Center for Physical Measurement Sytems, 2001-2003
20. IEEE-CPMT Faculty Fellowship Project: Internet-Based Multimedia Teaching of Sensorics, 2001-2002
21. Hungarian NSF (OTKA) T030574, Electrochemical Migration in Microcircuits, 1999-2002

**Supports for other international activities:**

- 25 times Hungarian OMFB-OM support for conference participation and organization
- 1995: co-chairmanship of NATO Advanced Research Workshop, Budapest, (HITECH.ARW 941320)
- 1994: co-chairmanship of NATO Advanced Research Workshop, Islamorada, Florida Keys, USA (HITECH.ARW 931674)

**Leadership in industrial projects performed for companies:**

Microelectronics Company (MEV), KOMED, Freudenberg Mectec Hungary (FMH), Bosch, Flextronics, Elcoteq, Jabil, Nokia, Sanmina SCI, Samsung SDI, Tycoelectronics, Ferroelectronics, Videoton, VT-Circuits, Visteon, Philips, SAP, Continental-Temic, Vincotech, Lightware.

**Consultancy at the following companies:** Tekmar (Germany), Whirlpool-Europe (Italy), Automotive System Labs.(USA), Metallux (Switzerland).

**Editorial Board memberships in international journals:**

- 2021-present MDPI “Materials”
- 1998-present „Sensor Review”
- 2011- 2015 Periodica Polytechnica Electrical Engineering, Section Editor
- 2009-2015 „Microsystem Technologies”
- 1998-2000 „Microelectronics International”

**Scientific reviewer functions:** reviewer in the Hungarian Scientific Research Fund system, referee of Ph.D. and MTA DSc theses, membership in the reviewer committees, reviewer expert in the EU proposal systems (FP6, FP7, H2020)

**Reviewer functions at 10 international journals, conference chair, and co-chair, session chair and program committee member at 15 international conferences (IEEE, IMAPS), invited speaker 8 times.**

**Invited lectures at universities.** Helsinki University of Technology, Espoo, Finland. 2002 (Sensors in Biomedical Applications); Georgia Institute of Technology, Atlanta, USA, 1999 (Sensors Education at TU Budapest); Florida International University, Miami, USA, 1995 (Polymer Films in Sensor Applications); University of California, Berkeley, USA, (Packaging of Sensors), 1992

**Fields of education:**

- (I) Electronics technology and material science, interconnection and packaging
- (II) Sensor technologies and applications

**Taught Subjects:**

Construction of Electrical Circuits, Electronics Technology and Materials (lecturer), Sensors in Biomedical Applications, Sensors, Actuators and Displays, Physical, Chemical and Nanotechnologies, Reliability failure analysis, Microtechnology and Nanotechnology, Quality Assurance in Microelectronics, Module Circuits and Electronic Appliances, System technology of circuit modules, Highly Integrated Module Circuits, Nanoscience, Sensors’ operation, and technologies

**Teaching materials:** authored or composed 14 textbooks and teaching materials in Hungarian, English and German languages.

### Teaching Management:

- Compiler of the BSc specialization „Microelectronics and electronics technology“;
- Compiler of the MSc specialization “Electronics technology and quality assurance”, “Microelectronics and electronics technology”, “Applied Sensorics”.
- Member of the BME (Budapest University of Technology and Economics) Doctoral School of Electrical Engineering (Core member), the Council of the Doctoral School, as well as of the Habilitation Committee, and Doctoral Council (since 2006)
- Member of the BME Doctoral School of Physics, Habilitation Committee, and Doctoral Council (since 2006)
- Member of the OE (Óbuda University) Doctoral School of Materials Science and Technologies (since 2016), as well as of the Habilitation Committee and Doctoral Council (2016-2021).

**International level education activity:** professional short courses worldwide on the topic Sensors at the European Microelectronics Conferences (IMAPS), in the frame of the EURO PRACTICE project, as well as with the sponsorship of Technomic Publishing Co. and IEEE CPMT. The last course was given at the European Microelectronics and Packaging Conference (EMPC 2021, <https://empc2021.org/short-courses/> ). Development of the Sensedu and Memsedu and other internet based teaching material with the sponsorship of IEEE (<https://harsanyi.ett.bme.hu/sensedu/>). In the IMAPS Distinguished Speaker Webinars program a lecture was given on 2021: Tools for Remote Teaching: an Extreme Challenge arising from the Pandemic (<https://imapseurope.org/tools-for-remote-teaching-an-extreme-challenge-arising-from-the-pandemic/> ).

**PhD students who obtained their degrees under his supervision:** 10 persons (see the homepage of the Hungarian Doctoral Council:  
[http://www.doktori.hu/index.php?menuid=192&sz\\_ID=1134&lang=EN](http://www.doktori.hu/index.php?menuid=192&sz_ID=1134&lang=EN) )

### Monographs:

**Sensors in Biomedical Applications:** Fundamentals, Technology & Applications  
Lancaster, US, Technomic Publishing Co. (2000) , 350 p.  
ISBN: [1566768853](https://www.isbn-international.org/details/9781566768853)

**Polymer Films in Sensor Applications:** Technology, Materials, Devices and their Characteristics  
Lancaster, US, Technomic Publishing Co. (1995) , 435 p.  
ISBN: [1566762014](https://www.isbn-international.org/details/9781566762014)

### Summary of publication activity with citation data

(<https://m2.mtmt.hu/gui2/?type=authors&mode=browse&sel=10001230&view=pubTable>)  
the list is available here: <https://m2.mtmt.hu/gui2/?type=authors&mode=browse&sel=10001230>

- number of publications: 329, including
  - scientific journal papers: 86
  - papers in conference proceedings: 156
  - monographs: 2
  - chapters in books: 6
  - edited books and conference proceedings: 3
  - patents: 12
- number of independent citations above 2500
- Hirsch-index: 27