

Short CV of Pr Henri HAPPY



Website of the research group: <http://carbon.iemn.univ-lille1.fr>

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Research Lab:

Institute of Electronic, Microelectronic and Nanotechnology (IEMN)
Avenue Poincaré – CS 60069 – 59655 Villeneuve d’Ascq – France
Website : www.iemn.univ-lille1.fr

Professional experience

Associated Professor 1993-2001, Full Professor since 2002 with University of Lille 1

Teaching experience – Formation

RF circuits, telecommunications, technology of semiconductor devices, nanotechnology
Level: Master degree

Henri Happy received the Ph.D. degree in Electrical Engineering from the University of Lille 1, in 1992. In 1988 he joined the Institute of Electronic, Microelectronic and Nanotechnology (IEMN), one of the Lab of University Lille 1, where he is currently Full Professor of Electronics. His primary research interests are in high electron-mobility transistor (HEMT) modeling. From 1998 to 2003, his research areas were involved with the design, fabrication and characterization (up to 220 GHz) of MMICs for optical communications systems. Since 2004, his research area has focused on nanodevices, and particularly carbon devices (carbon nanotube, graphene). These activities concern understanding of fundamental limitations and improvement of high frequency performance of carbon devices, and their applications in emerging fields of RF circuits on flexible substrates. This includes graphene growth either on SiC and metal substrate, the new 2D materials such as transition metal dichalcogenides (TMDCs), fabrication and characterization of graphene FET. He is a leading investigator on the high frequency device research carried out under the **European Graphene Flagship program** since 2013. His experience is recognized by the community: he has presented many invited talks, seminars and tutorials. Henri Happy has authored or co-authored about 100 international publications and communications.

Main publications in my research field

1. **Graphene nanotransistors for RF charge detection** Pallecchi E., Wilmart Q., Betz A.C., Jhang S.H., Fève G., Berroir J.M., Lepilliet S., Dambrine G., HAPPY H., PLAÇAIS B. J. Phys. D-Appl. Phys., 47, 9 (2014) 094004
2. **Inkjet printing technology for polymer thermal conductivity measurement by the three omega method**, Al-Khudary N., Cresson P.Y., Wei W., Happy H.G., Lasri T. Polym. Test., 40 (2014) 187-195
3. **Measurement techniques for RF nanoelectronic devices : new equipment to overcome the problems of impedance and scale mismatch**, Happy H., Haddadi K., Theron D., Lasri T., Dambrine G., IEEE Microw. Mag., 15, 1 (2014) 30-39
4. **Flexible GHz transistors derived from solution-based single-layer graphene**; Sire C., Ardiaca F., Lepilliet S., Seo J.W.T., Hersam M.C., Dambrine G., Happy H., Derycke V.; Nano Lett., 12, 3 (2012) 1184-1188; doi: 10.1021/nl203316r (**33 citations ISI WoS**)
5. **Fabrication and characterization of an epitaxial graphene nanoribbon-based field-effect transistor**; Meng N., Fernandez J.F., Vignaud D., Dambrine G., Happy H.; IEEE Trans. Electron Devices, 58, 6 (2011) 1594-1596; doi: 10.1109/TED.2011.2119486 (**10 citations ISI WoS**)
6. **80 GHz field-effect transistors produced using high purity semiconducting single-walled carbon nanotubes**; Nougaret L., Happy H., Dambrine G., Derycke V., Bourgoin J.P., Green A.A., Hersam M.C.; Appl. Phys. Lett., 94, 24 (2009) 243505-1-3; doi: 10.1063/1.3155212, (**82 citations ISI WoS**)
7. **Gigahertz characterization of a single carbon nanotube**; Nougaret L., Dambrine G., Lepilliet S., Happy H., Chimot N., Derycke V., Bourgoin J.P.; Appl. Phys. Lett., 96, 4 (2010) 042109-1-3 (published january 28, 2010); doi: 10.1063/1.3284513 (**12 citations ISI WoS**)
8. **Fabrication and characterization of low-loss TFMS on silicon substrate up to 220 GHz**; Six G., Prigent G., Rius E., Dambrine G., Happy H.; IEEE Trans. Microw. Theory Tech., 53, 1 (2005) 301-305; doi: 10.1109/TMTT.2004.839915(**25 citations ISI WoS**)

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Teaching experience – Formation

RF circuits, telecommunications, technology of semiconductor devices, nanotechnology– Master degree

Scientific activities

Device modeling (1992-1998), Design, fabrication and characterization of MMICs up to 220 GHz (1998-2003), Current research field: carbon devices, graphene and related 2D materials for high frequency applications. <http://carbon.iemn.univ-lille1.fr>

Main responsibilities

Lead of the Carbon electronic team –Director of the nanofabrication training center “CNFM – North of France”, located at University of Lille 1. <http://cnfm.univ-lille1.fr/index.php>

Management & Evaluation of Science

ANR projects (France); Evaluation of education program for AERES (France), FP7 Program, A*STAR projects (Singapore),

Editorial work

Reviewer for Nature Nanotechnology, Nano Letters, IEEE Trans on Nanotechnology, Applied Phys Letters, ...

Organization of conferences & schools

Technical Program Committee for SiRF 2010 - Chair person role for the sub-committee "Smart Materials and Nanotechnologies"
Member of the TPC of the EuMW2015 - Paris

Publications & Impact

Author or co-author of 2 patents, about 100 international publications and communications, 3 chapters of books.

Total number of times cited (Web of Science): 731

Average citations per year (Web of Science): 34

h-index (Web of Science):17

Current research grants

- Coordinator ANR GRACY (2012), PUF program (2010)
- Scientific Partner ANR CAMUS (2013)
- FP7 Program GRADE (2012)
- H2020 Program: Flagship Grapheme 2013-2023

Recent collaborations

- Northwestern University (M. Hersam – joint paper),
- University California, Irvine (P. Burke) – Laureate of the Partner University Funding (PUF) program 2010.
- Graphene Flagship: Collaboration with about 10 European countries and 20 research groups (Academic and industrials like Cambridge, , KTH, DTU, TUD, Univ Pisa, UAB Spain, Nokia, STM, Graphenea, VTT, ...)
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Research career achievements:

State of the art for cut-off frequency of Carbon Nanotube FET since 2009 (rigid and flexible substrate)

Impact, international recognition and diffusion

Scientific advisor of RFnano Corporation, California (2007-2013) - (<http://www.rfnano.com/Team.asp>)

Invited talk in many international conferences and Labs,

Management & scientific responsibilities

Lead of the Carbon electronic group. Co-management of the IEMN transversal research activity «Flexible electronics ».

Management & supervision of students

10 PhDs - 6 Post-docs – 3 current PhDs