

ARDENT - ESR- 12

Dr. Vijayaragavan VISWANATHAN

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▶ Who I am?

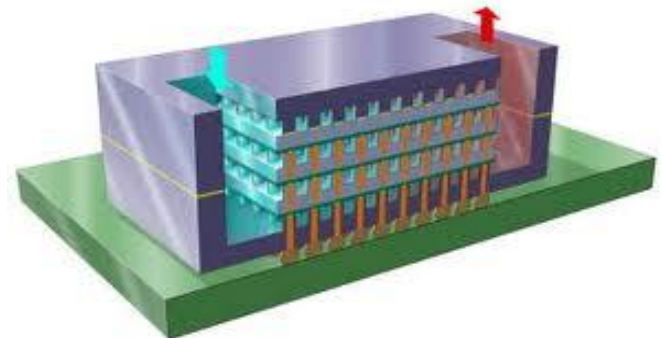
- Vijayaragavan Viswanathan
 - Call me VJ 😊
- Nationality: Indian
- Five years in Europe
 - Italy, France, Switzerland
 - Now in Czech Republic
 - Started on 1st October, 2012
- English, Tamil, French (Basic)



Source: www.mapsofindia.com

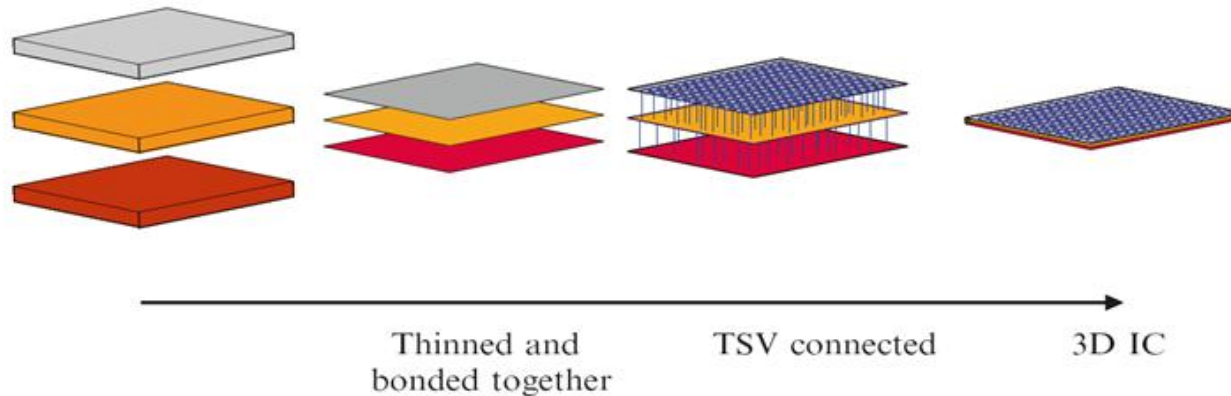
► Qualification

- Bachelors ('03- '07)
 - Electrical and Electronics Engineering
 - Amrita School of Engineering, Amrita University, India
- Masters ('07-'09)
 - International Masters in Micro and Nanotechnology for Integrated Systems (MNIS)
 - Politecnico di Torino (6 months), INPG (6 months), EPFL (1 year)
 - Research assistant – Integrated Systems Laboratory – Prof. Giovanni De Micheli
 - Thesis – Modeling of liquid cooling mechanisms for 3D chips
 - Embedded Systems Laboratory – Prof. David Atienza
 - Collaboration – IBM Zurich research labs, LTCM, LSM
 - Swiss – Nano-tera project – CMOSAIIC
- Masters research ('08-'09)
 - Microelectronics and nanoelectronics
 - Universite Joseph Fourier, France



Source: IBM Zurich research labs

- Ph.D ('09-'12)
 - Lyon Institute of Nanotechnology – Ecole Centrale de Lyon - France
 - 3D-IDEAS -CEA-LETI, ST Microelectronics, IMEP-LAHC, InESS,INL
 - Completed in September 2012
 - Modeling and design of 3D Image sensor – Prof. Ian O'Connor
 - Hierarchical abstraction modeling – Top-down design methodology
 - Thermal management studies
 - 3D integrated imager thermal models



Currently..... Academic research → Industrial research

Source: A. Papanikolaou et al. (eds.), *Three Dimensional System Integration: IC Stacking, Process and Design*, Springer Science+Business Media, LLC 2011

▶ JABLOTRON Holding

JABLOTRON
CREATING ALARMS

- Established in 1990 = 20 year history
- 100% Czech private company
- Specialization = flexibility
- Diversification = stability



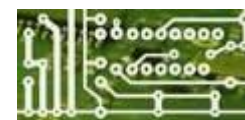
Jablotron SK
Distribution

Jablotron Alarms
Alarm systems

Jablotron Security
Central monitoring

JabloCOM
GSM phones

JabloPCB
Manufacturing



Products:

- Building alarms (83%)
- Home automation
- Car alarms
- Baby breathing monitor
- Digital photo album

Totally about 160 items



▶ The very first steps

- Year **2010** - The first mission to CERN
- CEO Mr. Dalibor Dědek
- Faced a challenge to get a “go ahead”...
- Acquired two types of licenses for application of Timepix detector:
 - **Educational toolkit**
 - **Homeland security** detectors
- Primary objective
 - Support research
 - Encourage new ways of education strategy
 - Learn something new and diversify our know-how
- “Learn by providing a teaching tool”
...our first aim was the educational kit



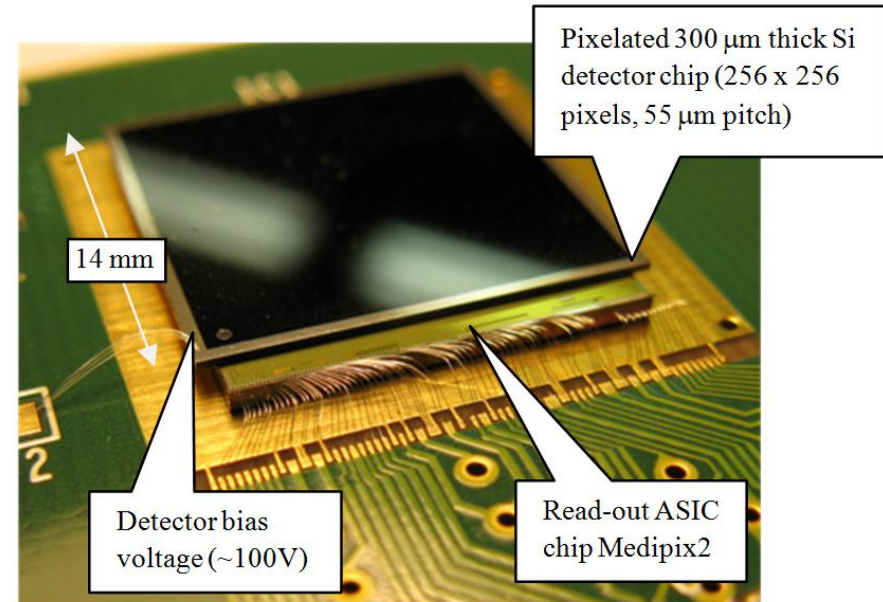
▶ What's next?

- **Homeland security portable detector**
- Hand-held-like device for police, fire-brigade, airport security, etc.
- Intelligent dosimeter
- Development under **ARDENT / CERN initiative**



▶ Objectives

- Development of advanced instrumentation for radiation monitoring
 - Radiation dosimetry
 - Micro and nano-dosimetry
 - Photon and neutron spectrometry
- Technologies
 - Gas detectors
 - Solid state detectors
 - Track detector techniques
- Applications
 - Characterization of radiation fields
 - Homeland and security
 - Check radiation leakage
 - Around nuclear power plants
 - Medical environment (e.g X-ray rooms)



Source: IEAP, Czech technical university

- Bring research from point of view of private enterprise
 - Research
 - Feasibility study / Market survey
 - Production & Marketing
- Development of Medipix-based radiation monitoring system
 - Design of Medipix/Timepix monitoring system Development and preparation of educational kit for high schools and universities
 - Investigation of possible applications in radiation
- Current status
 - Applications department – Pavel HUBNER
 - Literature survey
 - Radiation dosimetry, radiation protection, existing tools, technologies etc.,
 - Medipix, Timepix, Interface etc.,
 - Investigation and development of interface for Timepix
 - Altium Designer– Schematic and PCB tool
 - Microcontroller programming

- Quality management training
- Organization structure training
- Security alarm training
 - JA-100 Security Alarm
- Installation training
 - AZOR security alarm
- Dissemination training
 - Presentation at the Foreign ministry regarding ARDENT and CERN collaboration
 - Presentation of Timepix toolkit – Schools
- Personal training
 - Czech language course

▶ Conclusion

- ARDENT will bring
 - High energy physics outcome to other fields
 - Extensive training and learning opportunity
 - Educational toolkit for students
 - To cultivate passion towards research
 - Hand held radiation monitoring instruments
 - To better understand and characterize the environment
 - Empower normal civilians
- Acknowledgement
 - CERN and ARDENT partners
 - Jablotron Alarms a.s
 - Dalibor Dědek
 - Pavel Hubner, Stepan Martinek, Martin Honig
 - Vladimir Stanislav, Katerina Valeckova
 - Colleagues, family and friends..

