



Industrial Advisory Board Meeting Agenda - DRAFT

April 11-13, 2017

Villanova University (Radnor Hotel)

April 11, 2017

3:30 – 5:00 pm **Workshop:** *Two-Phase Cooling and Waste Energy Re-Use from Rack-based Electronic Systems* – Prof. Alfonso Ortega and Sebastian Araya (Ph.D. Candidate), Villanova University

5:30 – 7:30 pm Networking Reception/and Student Poster Preview

April 12, 2017

7:30 – 7:55 am **CONTINENTAL BREAKFAST –**

8:00 Welcome /Housekeeping and introduction of new members, partners, and guests:
Andrea Palmeri, Managing Director, ES2 and AI Ortega, Site Director, Villanova University

8:10 Opening Remarks: Dr. Amanda Grannas, Associate Vice-Provost for Research, Villanova

8:20 NSF Evaluator update: Don Price

8:25 Center Director Report: Bahgat Sammakia – ES2 Center Director

Project Reports

VI, Pune Projects:

8:45 Project 17: *Data Center Temperature Monitoring and Analysis System* -Siddharth Jabade, Nitin Satpute,Manisha Mhetre, Kiran Shinde (VI, Pune) Chetan Khare (Logicare)

9:05 Project 18: *Investigations on FCMA Soft Starter-Based Screw Compressor Employed in Refrigeration System for Data Center Cooling*-Kedar Sant, Abhijeet Mali, Pranav Dhaneshwar, Isha Patankar, Prateek Prabhune, Rohit Nimje, Divesh R, Shreedatta Marathe, Niraj Kshirsagar, Pratikkumar More, Rohit Kharat (VI, Pune) Sanjay Bhade, Amar Pagar (Innovative Technomics)

9:25 Project 19: *Thermal Analysis of Data Center Using Hybrid (Air and Water) Cooling*-Mangesh Chaudhari, Ninad Jagdale(VI, Pune), Vikas Kumar (CDAC) Paul Chiarot (SUNY)

9:45 Project 11: *Two-Phase Cooling Coupled with Waste Heat Energy Capture from Data Center Environments* – Sebastian Araya, Felipe ValenzuelaGaete and Amy Fleischer/Jerry Jones (VU)

10:05 **BREAK**

10:20 Project 13: *Transient Thermal Response and Control of Data Centers* – Jayati Athavale, Joshi (GT)

10:40 Project 4: *Direct and Indirect Evaporative cooling for IT Pods (Phase II)* Ashwin Siddarth, Agonafer (UTA)

11:00 Project 6: *Dynamic Cold Plates for Effective Cooling of Multi-Core High-End Chip Scale Packages* - Rajesh Kasukurthy and Agonafer (UTA)

11:20 Project 15: *Warm Water Cooling in Data Centers Including Water Storage Systems* – Paul Chiarot, Sami Alkharabsheh, Bharath Ramakrishnan, Yaser Hadad (BU)



11:40 Project 1: *Exergy Based Approaches for holistic Design of Energy-Efficient Data Centers* -
Rehan Khalid, Aaron Wemhoff (VU)

Noon – 12:55 **LUNCH**

1:00 Project 7/14 (combined): *Models and Metrics for Dynamic Air and Hybrid Liquid Cooled Data Centers Based on Computational and Experimental Approaches and Experimental and Analytical Studies on Transport in Fully and Partially Enclosed Cold Aisles in Air Cooled Data Centers* –
Al Ortega, Sadegh Khalili, Mohammad Tradat (BU), Carol Caceres (VU)

Reliability

1:30 Project 10: *Impacts of Particulate and Gaseous Contamination on IT Equipment Where Air Side Economizers Are Implemented* - Iziren Akhigbe and Jimil M. Shah, Agonafer (UTA)

1:50 Project 20: *Environmental Acclimation of IT Equipment* – Neil Johnson, Agonafer (UTA)

Emerging Technologies

2:10 Project 16: *An In-Depth Understanding of Oil Immersion Cooling Strategies for Data Centers* -
Neil Vazhappilly and Jimil M. Shah, Agonafer- UTA

2:30 **BREAK**

2:40 DC-Powered Data Centers (DC Cluster Project) – Ghose (BU), Wemhoff (VU)

Software/Systems Issues

3:00 Project 2: *Energy Proportionality in Data Centers and Benchmarking: Synergistic Management of Workload, IT Equipment and Cooling System* – Udaya Puvvadi, Ghose (BU)

3:20 Villanova Facilities Tour

4:15 L.I.F.E. form review – Don Price

5:15 Review of evening and day two activities - Palmeri

5:20 Group Photo

5:30 – 7:30 Reception/Networking/Poster Session/voting on best poster –

April 13, 2017

7:30 - 7:50 am **CONTINENTAL BREAKFAST** –

8:00 Poster Contest feedback session and announcement of winner and morning activities

8:15 Guest Presenter – Dave Mendo, Comcast

8:45 Group open discussion time

9:45 **BREAK**

10:00 Concurrent sessions

- IAB Closed Meeting –
- ES2 Directors Meeting -
- Student Leadership Council Meeting -



Center for Energy-Smart
Electronic Systems

A National Science Foundation Industry/University Cooperative Research Center

11:00

Group meeting to discuss IAB Feedback

12:00

Adjourn