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2017 CAD Contest

- 2017 Contest – 6th edition of the CAD contest at ICCAD since 2012
- Largest worldwide EDA research and development contest

- Goal:
 - Boost academic research in real-world EDA problems
 - Foster a working relationship between members of academia and industry
 - Find new insights, approaches to the problems, and new talents

- Sponsorship
 - Financial Sponsorship :
 - IEEE Council on Electronic Design Automation (CEDA)
 - Ministry of Education (MOE), Taiwan
 - Taiwan IC Design Society (TICD) Synopsys, Inc.
 - Cadence, Inc.
 - MediaTek, Inc.

 - Technical Sponsorship:
 - National Chip Implementation Center (CIC), Taiwan

Contest Sessions at ICCAD

- CAD contest sessions at ICCAD has drawn big crowds!
 - Highest attendance over all regular sessions at ICCAD since 2012.
 - Venue to present contest problems and winning teams' technologies



CAD Contests Boost EDA Research

- **Total # of Citations to the past ICCAD contest papers: 130 (Google Scholar / ACM DL Library)**
- *2012 CAD Contest (47)*
 - Finding Minimal Logic Difference for Functional ECO: 2
 - **Fuzzy Pattern Matching for Physical Verification: 18**
 - **Design Hierarchy-aware Routability-driven Placement: 27**
- *2013 CAD Contest (33)*
 - Technology Mapping for Macro Blocks: 1
 - **Mask Optimization: 19**
 - **Placement Finishing: 13**
- *2014 CAD Contest (14)*
 - Simultaneous CNF Encoder Optimization: 2
 - Design for Manufacturability Flow: 5
 - Incremental Timing-driven Placement: 7
- *2015 CAD Contest (32)*
 - Large-scale Equivalence Checking and Function Correction: 3
 - 3D Interlayer Cooling Optimized Network: 2
 - **Incremental Timing-driven Placement: 27**
- *2016 CAD Contest (4)*
 - Non-exact Projective NPNP Boolean Matching: 1
 - Large-scale Identical Fault Search: 1
 - Pattern Classification for IC Design Space Analysis: 2

And more to come ...

2012-2016 Registration Statistics

2012 CAD Contest at ICCAD

56 teams from 7 regions:

USA , Japan, Mainland China, Hong Kong, Korea, Italy and Taiwan

2013 CAD Contest at ICCAD

87 teams from 9 regions:

USA , Canada, Brazil, India, Russia, Japan, Mainland China, Hong Kong and Taiwan

2014 CAD Contest at ICCAD

93 teams from 9 regions:

USA, Canada, Brazil, Russia, India, Singapore, Mainland China, Hong Kong and Taiwan

2015 CAD Contest at ICCAD

112 teams from 12 regions:

USA, Brazil, Belgium, Sweden, Russian, Egypt, Mainland China, Hong Kong, Korea, India, Iran and Taiwan

2016 CAD Contest at ICCAD

135 teams from 11 regions:

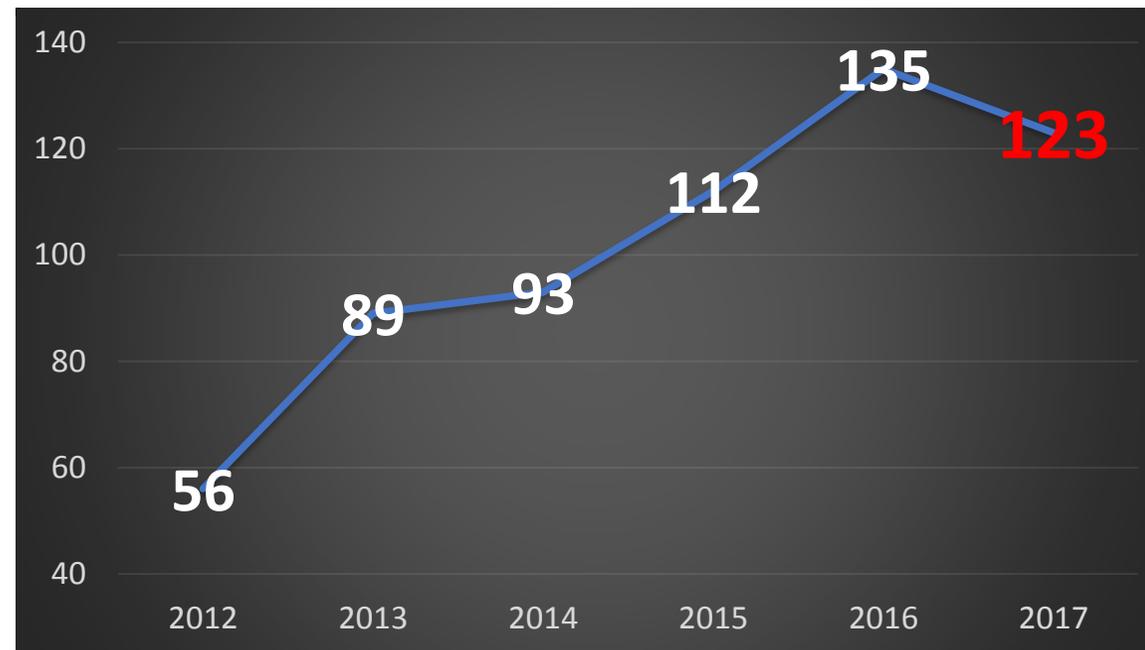
USA, Canada, Brazil, Russia, Mainland China, Hong Kong, Japan, Korea, India, Iran and Taiwan

2017 Registration Statistics

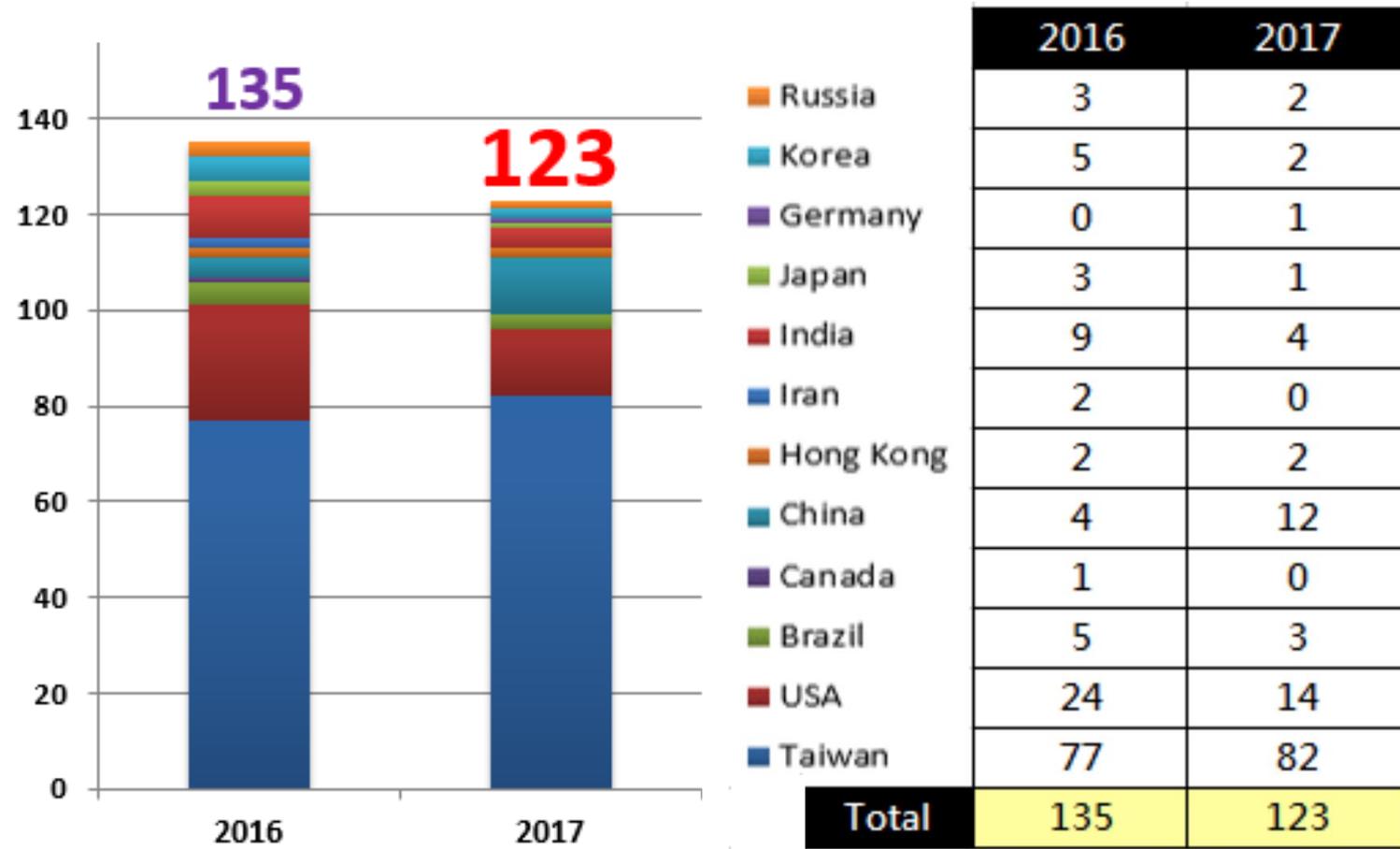
2017 CAD Contest

123 teams from 10 regions/countries

- North America: USA
- South America: Brazil
- Asia: Taiwan, Mainland China, Hong Kong, India, Japan, Korea
- Europe: Russia, Germany



Distribution of Teams



2017 CAD Contest Chairs



Myung-Chul Kim
IBM Corporation
USA



Rung-Bin Lin
Yuan Ze University
Taiwan



Shih-Hsu Huang
Chung Yuan
Christian University
Taiwan



Shigetoshi Nakatake
The University of
Kitakyushu
Japan

Three Contest Problems

Contributor	Topic (area)
Cadence Ching-Yi Huang, Chih-Jen (Jacky) Hsu and Chi-An (Rocky) Wu	Resource-aware Patch Generation (logic synthesis / functional ECO)
Synopsys Kai-Shun Hu and Cindy Shen	Net Open Location Finder with Obstacles (physical design / ECO routing)
Mentor Graphics Nima Karimpour Darav, Ismail Bustany and Andrew Kennings	Multi-Deck Standard Cell Legalization (physical design / legalization for advanced nodes)

Timeline

- Contest Call for Participation: Feb 1, 2017
 - Registration deadline: May 25, 2017
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- Alpha submission: Jun 25, 2017
 - Beta submission: Jul 26, 2017
 - Final submission: August 31, 2017
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- Announce top X teams: Oct 5, 2017
 - Final presentation: Nov 2017 (ICCAD)

Awards

- Winners receive monetary awards (students only) and certificates

Rank	Award
1st Place One team per topic	<ol style="list-style-type: none">1. NTD50,000/team (~ US\$1650)2. Certificate
2nd / 3rd Place Two teams per topic	<ol style="list-style-type: none">1. NTD30,000/team (~ US\$1000)2. Certificate

ICCAD Contest Special Session

- Present the three contest problems and evaluation metrics
- Release the official contest benchmark suites
- Play short video clips from the top-performing teams
 - Sketch key ideas and algorithms
 - Introduce teams
- Announce the final contest results and award winners

- OpenDesign Flow Database 2.0



Thank you!

