



IFAC TC 7.1 “Automotive Control”

TC Meeting @ IFAC WC 2014, Cape Town

August 27th, 2014

Gianfranco Rizzo - Lars Eriksson



Agenda

1. Report on TC activities
 1. IFAC AAC 2013
 2. IFAC WC 2014
2. New TC Chair
 1. IFAC AAC 2016
3. Any other business



REPORT ON TC ACTIVITIES

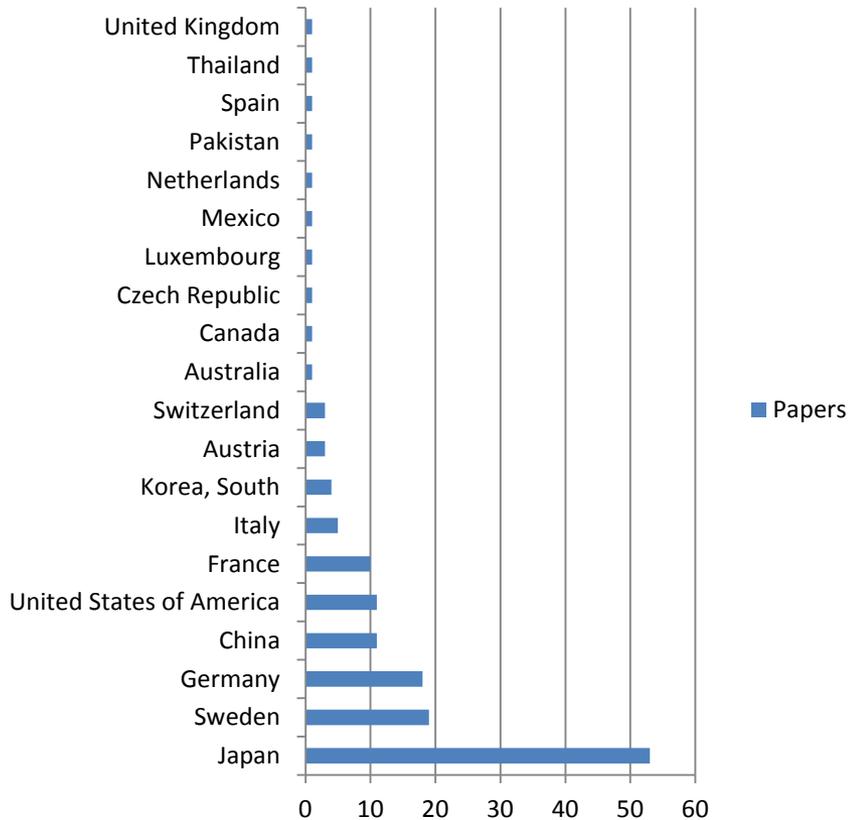


AAC13, TOKYO



AAC13: some figures

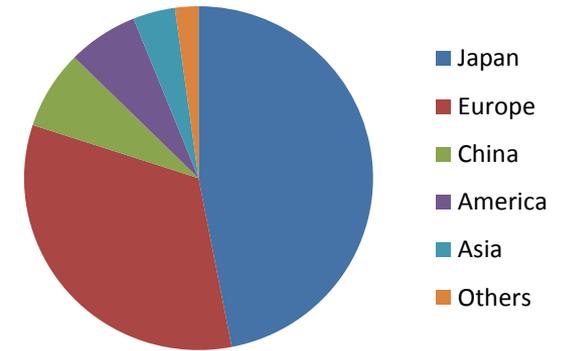
Papers



147 Papers

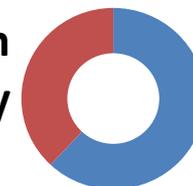
230 Participants

Participants: Regions



Participants

38% from industry



62% from academia

Academic
Industry



AAC13 - Authors per country

Country	Contributed and Invited Papers in Program (All Authors)	Contributed and invited submissions (CA)	Contributed and invited papers in program (CA)	Session proposal submissions (CA)	Invited sessions in program (CA)
Japan	170	54	53	3	3
Sweden	59	21	21	1	1
Germany	58	18	18	0	0
France	41	10	10	0	0
China	35	13	11	0	0
United States of America	33	13	11	0	0
Italy	25	5	5	0	0
Korea, South	15	4	4	0	0
Switzerland	11	3	3	0	0
Austria	10	3	3	0	0
Canada	4	1	1	0	0
Netherlands	4	1	1	0	0
United Kingdom	4	1	1	0	0
Czech Republic	3	1	1	0	0
Mexico	3	1	1	0	0
Belgium	2	0	0	0	0
Luxembourg	2	1	1	0	0
Pakistan	2	1	1	0	0
Singapore	2	0	0	0	0
Thailand	2	1	1	0	0
Australia	1	1	1	0	0
Hungary	1	0	0	0	0
Spain	1	1	1	0	0
	0	0	0	0	0
Malaysia	0	1	0	0	0
Totals	488	155	149	4	4



AAC13: some figures

Area	Contributed	Industrial	Invited	Invited session
<u>Active Safety and Driver Assistance Systems</u>	27	1		
<u>Alternative Power Systems</u>	27		2	
<u>Combustion Engine Control - Conventional Drive Train</u>	32	4		
<u>Design and Engineering</u>	17	1	18	4
<u>Vehicle Dynamics and Control</u>	18		1	
Total	121	6	21	4

Accepted papers and areas



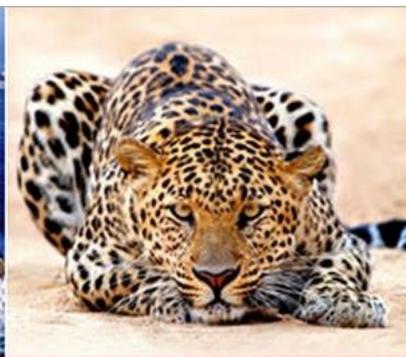
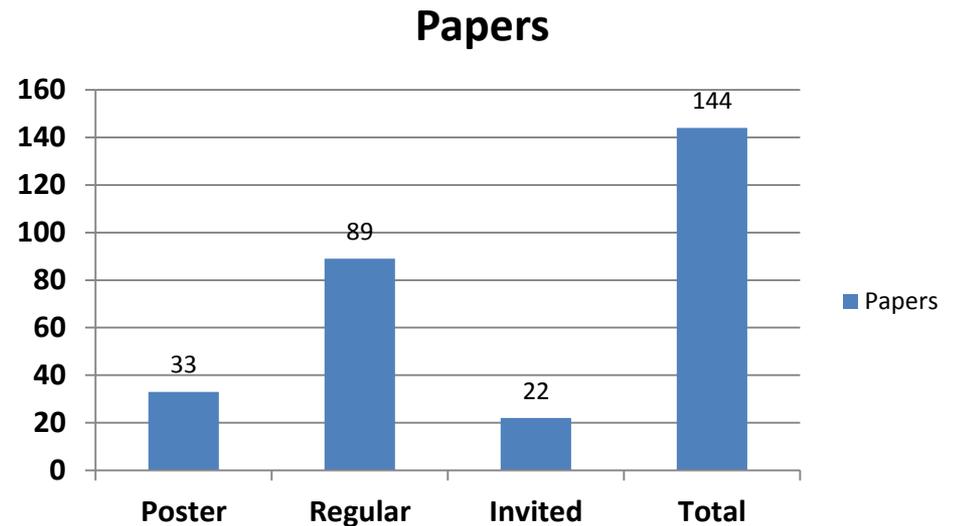
Keywords [\(complete report\)](#)

Keyword	First keyword count	Total count
Combustion Modeling and Control: Spark Ignition, Compression Ignition, Homogeneous Charge Compression Ignition*	25	36
Plant Modelling and System Identification*	15	31
Energy Management*	19	30
XEV (HEV, EV, FCEV, etc.)/Solar-Powered Vehicles*	9	30
Model-based Calibration*	5	20
Integrated Motion Control: Direct Yaw Control/Electronic Stability Control, 4 Wheel Steering, X-by-Wire, Active Suspensions and Roll Bars*	8	19
Active Chassis Systems: Brake, Steering, Suspension Systems*	11	18
Autonomous Driving and Collision Avoidance: Sensor Fusion, Modeling of the Environment, Control Architectures*	9	18
Hardware-in-the-loop Simulation*	8	17
Adaptive Cruise Control, Heading Control, Lanekeeping, Driver Warning Systems, Systems Based on Car-to-x-communication*	5	13
Battery Model and Battery Control*	4	13
Gas Exchange Processes: Turbocharging, Supercharging, Variable Valve Technology*	7	12
Rapid Control Prototyping*	5	11
Intelligent Vehicles and Robotics Technology in Vehicles*	5	11
Human Factors in Driver Dynamics or Driver Assistance Systems*	9	10
Vehicle State Estimation: Sensor Development, Sideslip Angle Observation, Tire and Friction Estimation*	4	8
Exhaust Gas Aftertreatment*	3	6
Energy Storage Systems: Electrochemical Systems, Hydrogen Storage, Charging and Infrastructure*	2	5
Diagnosis*	2	5
Model-based Diagnostics*	1	4
Security and Dependability*	3	4
Vehicular Power Networks and Inter-Vehicular Networks*	0	4
Functional Safety and Standardization*	0	3
Integrated Motion Control: Direct Yaw Control/Electronic Stability Control), 4 Wheel Steering, X-by-Wire, Active Suspensions and Roll Bars		8
Totals	159	328



IFAC WC 2014

- A large number of sessions on topics related to automotive control and transport are planned at WC IFAC 2014.
- 144 papers presented:
 - 89 in 15 Regular Sessions
 - 22 in 4 Invited Sessions
 - 33 in 2 Poster Sessions.





IFAC WC 2014

Sessions on automotive and transport 1/2

- Monday, August 25, 2014
 - MoA25 - Interactive Session on Transportation and Vehicle Systems (Poster Session, 17 Papers)
 - MoC08 - Energy Management in Electric and Hybrid Vehicles (6 Papers)
 - MoC19 - Guidance, Navigation and Control of Vehicles I (6 Papers)
 - MoC23 - Autonomous Vehicles (6 Papers)
- Tuesday, August 26, 2014
 - TuA08 - Engine Modelling and Control I (6 Papers)
 - TuA19 - Guidance, Navigation and Control of Vehicles II (6 Papers)
 - TuB08 - Energy Management Control for XEV: Modelling and Battery Element (Invited Session, 5 Papers)
 - TuB17 - Automatic Control in Road Transportation (6 Papers)
 - TuC08 - Energy Management for XEV: Optimization and Control Strategies (Invited Session, 5 Papers)



IFAC WC 2014

Sessions on automotive and transport 2/2

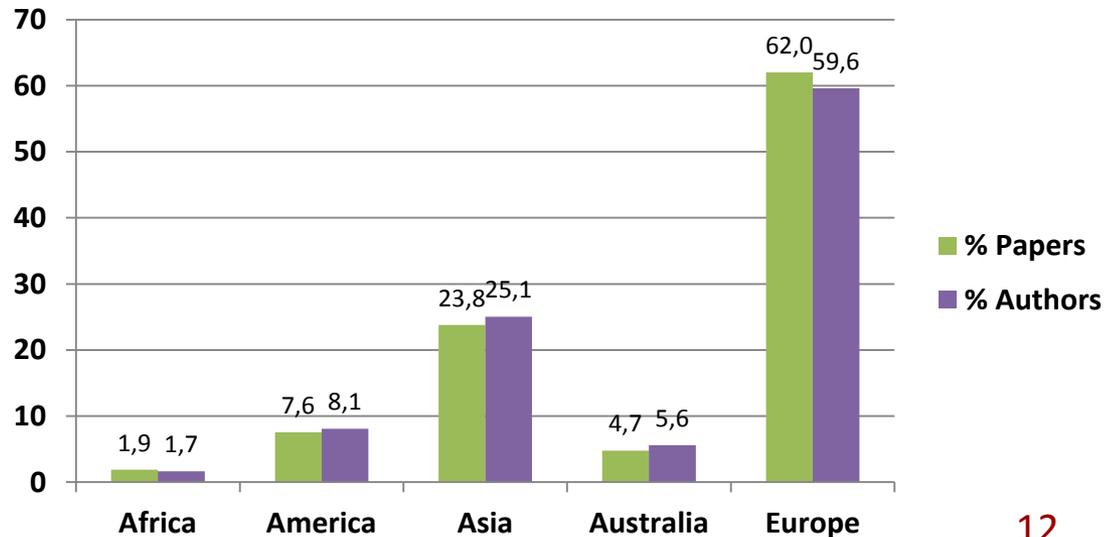
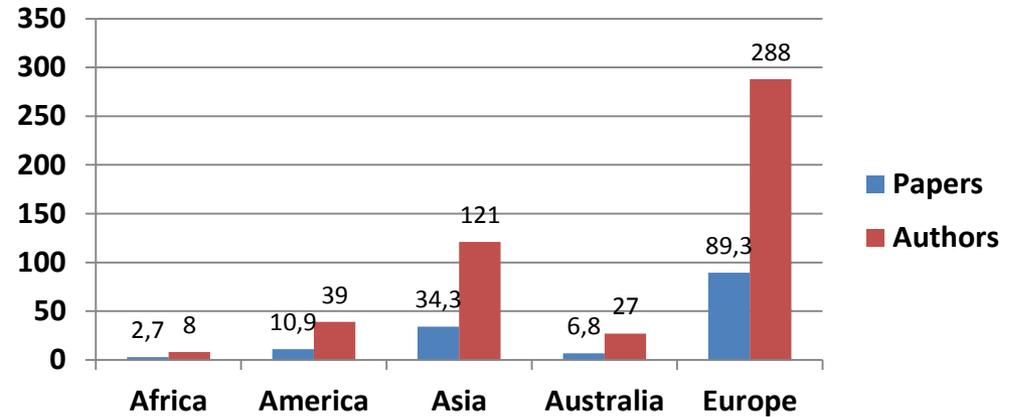
- Wednesday, August 27, 2014
 - WeA08 - Engine Modelling and Control II (6 Papers)
 - WeA25 - Interactive Session on Automotive Control (Poster Session, 16 Papers)**
 - WeB08 - Hybrid and Alternative Drive Vehicles (6 Papers)
 - WeC08 - Nonlinear and Optimal Automotive Control (6 Papers)
 - WeC17 - Energy Management and Grid Interaction for Plug-In Electric Vehicles (Invited Session, 5 Papers)**
 - WeC23 - Multi-Vehicle Systems (6 Papers)
- Thursday, August 28, 2014
 - ThA08 - Sensing and Estimation for Automotive Applications (6 Papers)
 - ThA17 - Modeling and Simulation of Transportation Systems (6 Papers)
 - ThC23 - Vehicle and Transportation Control Systems (Invited Session, 6 Papers)**
- Friday, August 29, 2014
 - FrA14 - Suspension Control (6 Papers)
 - FrB17 - Safety in Road Transport Systems (5 Papers)
 - FrB08 - Modeling, Estimation and Control of Diesel Engine Powertrains (6 papers)**



IFAC WC 2014 - Automotive and transport

Regional distribution

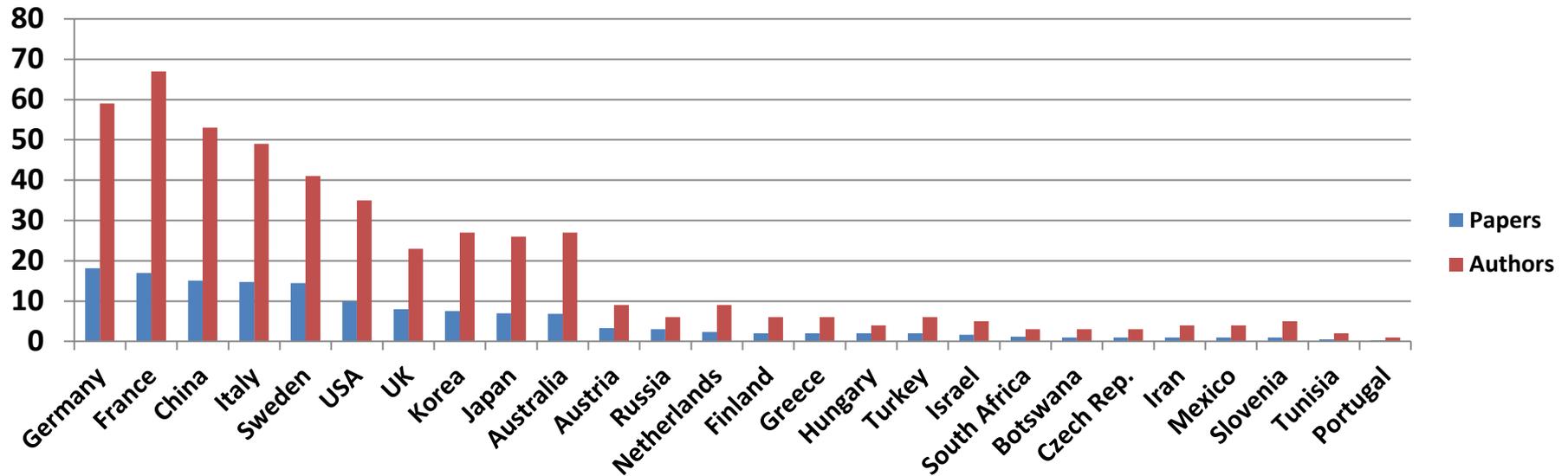
- Most papers come from Europe (62%).
- Increasing participation from Asia (24%) and Australia (4,7%).
- Decreasing participation from America (7,6%).
- Some papers from Africa (2%).





IFAC WC 2014 - Automotive and transport Distribution per country

- Papers/authors from 26 different countries.
- Most papers/authors from Germany, France, China, Italy, Sweden, USA, Korea, Japan and Australia.





Organizing publications on journals

- Special issues on CEP including papers presented at WC 2011 and AAC10 has been published.
- Special Issue on CEP including papers presented at WC 2014 is in preparation (editors: G.Rizzo, L.Eriksson, Y.Chamaillard).



TC STATS



TC Composition

2011-2014

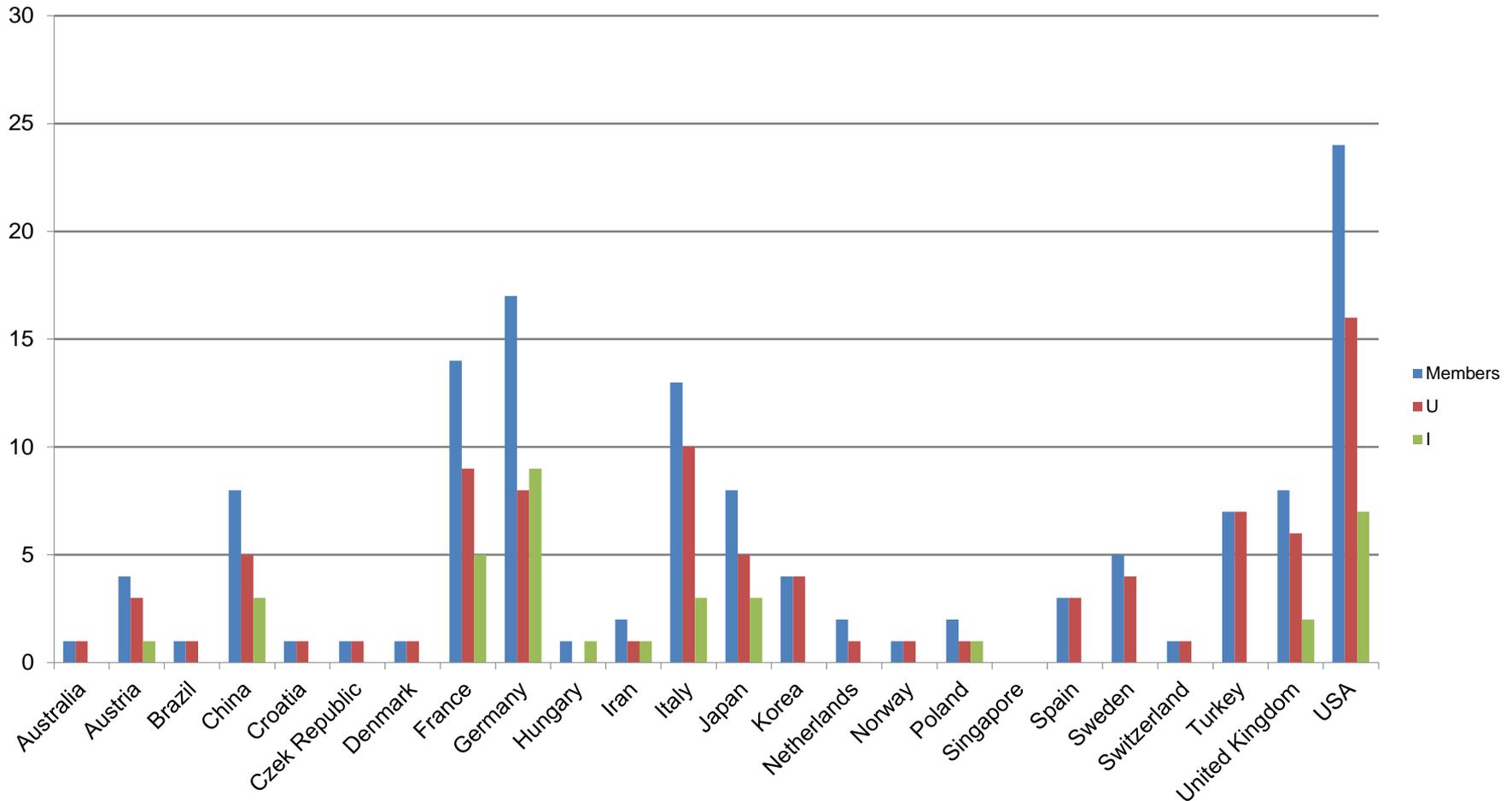
2014-

- **Chair:**
 - **Gianfranco Rizzo**, University of Salerno, Italy
 - **Vice-Chair:**
 - **Yann Chamailard**, Université d'Orléans, France
 - **Lars Eriksson**, University of Linkoping, Sweden
 - **Lino Guzzella**, ETH, Zurich, Switzerland
 - **Giorgio Rizzoni**, Ohio State University, Columbus OH, USA
 - **Vice-Chair from industry:**
 - **Akira Ohata**, Toyota Motor Corporation
 - **Members:**
 - **Regular: 118**
 - **Junior: 16**
 - **Total: 134**
- **Chair:**
 - **Lars Eriksson**, University of Linkoping, Sweden
 - **Vice-Chair:**
 - **Yann Chamailard**, Université d'Orléans, France
 - **Vice-Chair from industry:**
 - **Akira Ohata**, Toyota Motor Corporation
 - **Senior Members/Past Chairs**
 - **Lino Guzzella**, ETH, Zurich, Switzerland
 - **Gianfranco Rizzo**, University of Salerno, Italy
 - **Giorgio Rizzoni**, Ohio State University, Columbus OH, USA
 - **Members:**
 - **Regular: 123**
 - **Junior: 19**
 - **Total: 142**



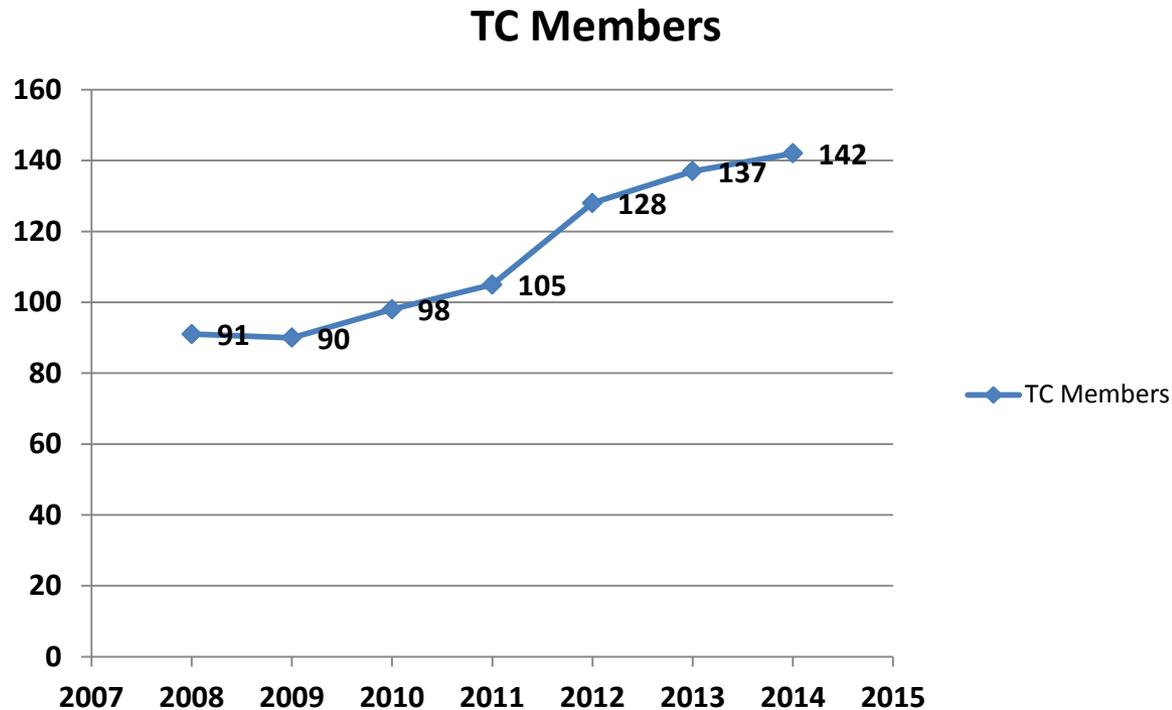
TC Members per country and affiliation

Members = Total Number of Members – U=University – I=Industry





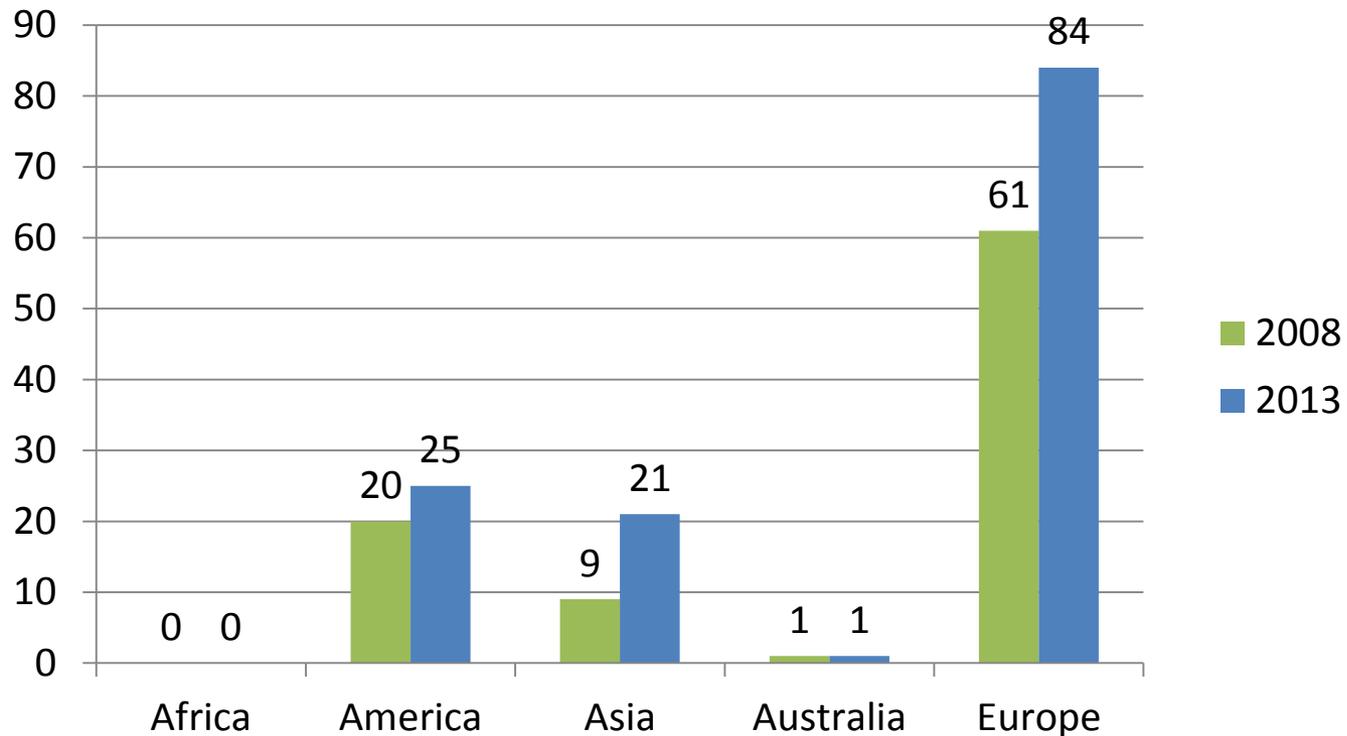
Trend over years



- Significant increase of TC members since 2008



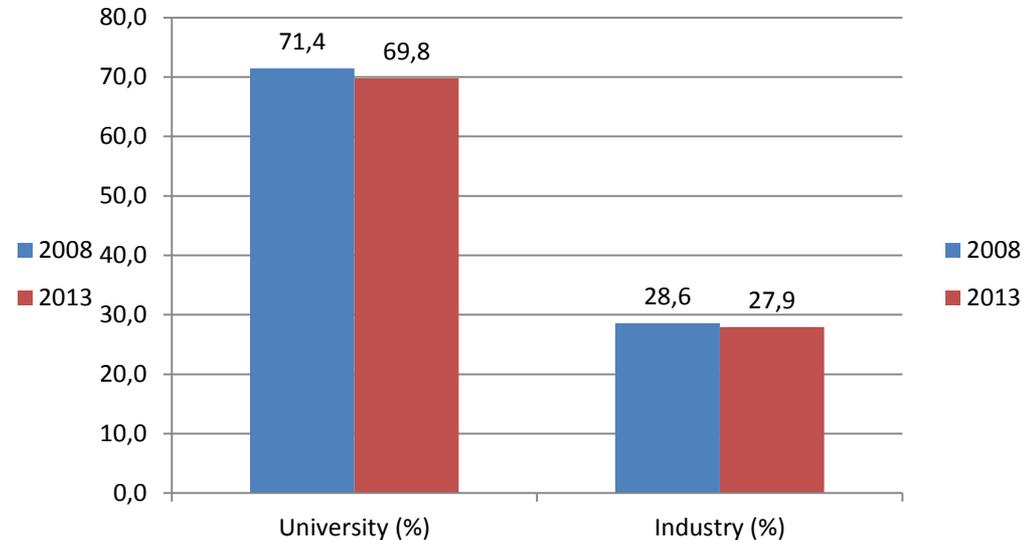
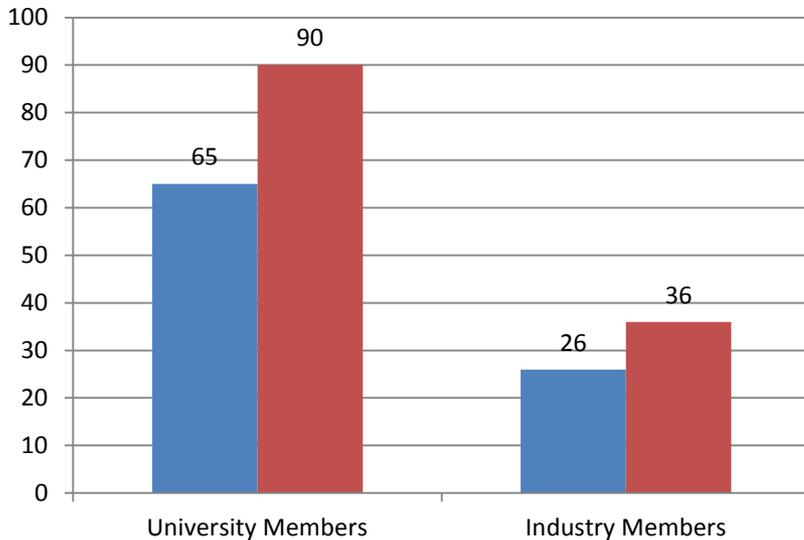
Regional distribution



- Particularly relevant is the **growth in Asia**, passing from 9 to 21 members, with 6 new members from **China**.



University and Industry



- In terms of affiliations, the increment is mainly due to a greater number of members from **universities** (from 65 to 90), while also **industry** members have significantly grown from 26 to 36.



Participation to TC

- To apply, please send your CV and a picture to the TC Chair at the address:

info@ifac-automotivecontrol.org

- Possible participation as:
 - Active Member (AM): active participation to review process, working groups etc.
 - Corresponding Member (CM): in a networking position.
 - Junior Member (JM): for people working in Automotive Control area with less of 5 years experience.



COMMUNICATION TOOLS



Visibility on Google

- IFAC TC websites have a very good visibility and **top positions** on Google.



Google "automotive control"

Web Immagini Maps Shopping Altro ▾ Strumenti di ricerca

Circa 284.000 risultati (0,35 secondi)

I cookie ci aiutano a fornire i nostri servizi. Utilizzando tali servizi, accetti il nostro utilizzo dei cookie.
 [Ulteriori informazioni](#)

[IFAC Technical Committee **Automotive Control**](http://www.ifac-automotivecontrol.org/)
www.ifac-automotivecontrol.org/ ▾ Traduci questa pagina
Home | Welcome | Scope | Members | Working Groups | Events | Noticeboard |
Newsletter | Survey | Photo | Forum | Guestbook | Reserved Area ...

[Automotive Control Centres - Tnt](http://www.tnt.it/it/services/sol_i_automotive_control_centres.shtml)
www.tnt.it/it/services/sol_i_automotive_control_centres.shtml ▾
Automotive Control Centres. Un team specializzato all'interno dei nostri Automotive Control Centres offre un unico punto di contatto e supporto dedicato ...

[TC 7.1. Automotive Control — IFAC TC Websites](http://tc.ifac-control.org/7/1/)
tc.ifac-control.org/7/1/ ▾ Traduci questa pagina
IFAC Technical Committee **Automotive Control**. Home favicon Scope favicon Members favicon News favicon Activities favicon Bulletin favicon Events favicon ...

[Automotive Controls | IEEE Control Systems Society](http://www.ieeecss.org)
www.ieeecss.org ▸ Technical Activities ▾ Traduci questa pagina
The scope of interest of the Technical Committee on **Automotive Control** covers modeling, simulation, identification, estimation, control and diagnostics of ...



Newsletters

Newsletter Archives:

Subject	Date
NEWSLETTER #30 - IFAC TC 7.1 "AUTOMOTIVE CONTROL"	Aug 21, 2013
NEWSLETTER #29 - To TC Members only - IFAC PUBLICATIONS	Jun 23, 2013
NEWSLETTER #28 - IFAC TC 7.1 "AUTOMOTIVE CONTROL" - AAC13 - IFAC WC 2014 - AAC16 and AAC19.	May 31, 2013
NEWSLETTER #27 - IFAC TC 7.1 "AUTOMOTIVE CONTROL" - AAC13 - Call for Education Delegates	Feb 26, 2013
NEWSLETTER #26 - IFAC TC 7.1 "AUTOMOTIVE CONTROL" - AAC13 IN JAPAN: DEADLINE EXTENDED	Nov 17, 2012
NEWSLETTER #25 - To the IFAC TC 7.1 Members only - AAC13 IN JAPAN: DEADLINE EXTENDED - INVITED SESSIONS	Nov 17, 2012
NEWSLETTER #24 - IFAC TC 7.1 "AUTOMOTIVE CONTROL" - AAC13 IN JAPAN: DEADLINE IS APPROACHING!	Nov 1, 2012
NEWSLETTER #23 - IFAC TC 7.1 "AUTOMOTIVE CONTROL" - AAC13 IN JAPAN - ICCVE 2012 IN BEIJING - NEW ENTRIES	Aug 2, 2012
NEWSLETTER #22 - IFAC TC 7.1 "AUTOMOTIVE CONTROL" - AAC13 IN JAPAN	Feb 2, 2012
NEWSLETTER #22 - IFAC TC 7.1 "AUTOMOTIVE CONTROL" - AAC13 IN JAPAN	Jan 31, 2012
IFAC TC 7.1 Meeting in Milan - Please register	Aug 1, 2011
Low Carbon Economy Summit 2011: Speech Opportunity Available - TC Meeting in Milan	Jun 30, 2011
NEWSLETTER #21 - IFAC TC 7.1 "AUTOMOTIVE CONTROL" - TC MEETING AT THE IFAC WORLD CONGRESS IN MILAN - AUTOMOTIVE CONTROL ON FACEBOOK	Jun 30, 2011
NEWSLETTER #21 - IFAC TC 7.1 "AUTOMOTIVE CONTROL" - TC MEETING AT THE IFAC WORLD CONGRESS IN MILAN - AUTOMOTIVE CONTROL ON FACEBOOK	Jun 30, 2011
NEWSLETTER #20 - IFAC TC 7.1 "AUTOMOTIVE CONTROL" - TC MEETING AT THE IFAC WORLD CONGRESS IN MILAN - AUTOMOTIVE CONTROL ON FACEBOOK	Jun 29, 2011
NEWSLETTER #20 - IFAC TC 7.1 "AUTOMOTIVE CONTROL" - IFAC WC 2011: DEADLINE POSTPONED TO OCTOBER 13 - NEW MEMBERS	Sep 24, 2010
NEWSLETTER #19 - IFAC TC 7.1 "AUTOMOTIVE CONTROL"	Jul 31, 2010
NEWSLETTER #18 - IFAC TC 7.1 "AUTOMOTIVE CONTROL"	Jun 8, 2010
NEWSLETTER #17 - IFAC TC 7.1 "AUTOMOTIVE CONTROL" - AAC 2010 DEADLINE EXTENDED TO NOVEMBER 30	Nov 16, 2009

- 30 Newsletters sent from 2008 to sept. 2013 to the whole database (3600+ contacts) or to TC Members.

Automotive Control Group on Facebook

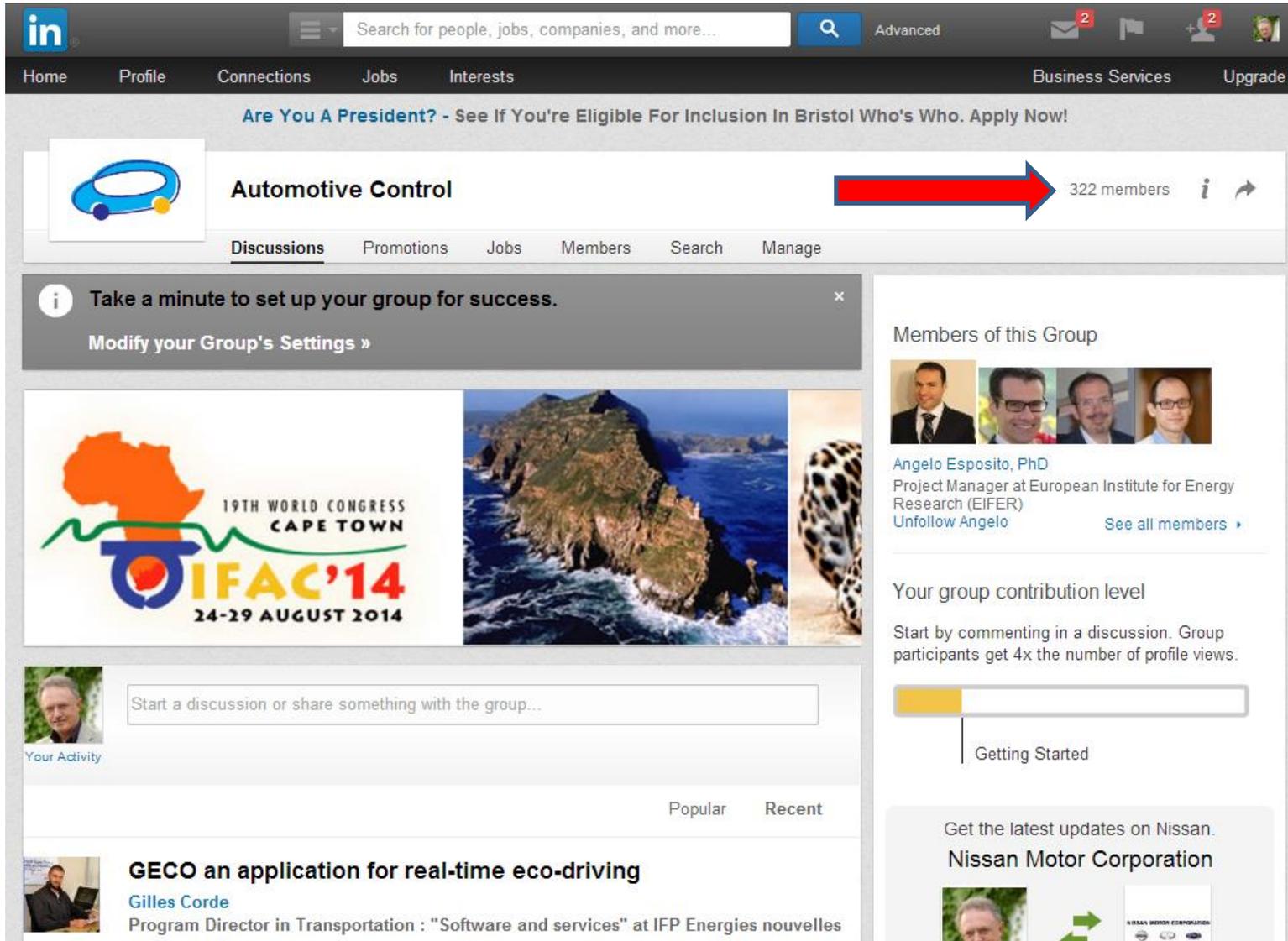


The screenshot shows the Facebook group page for 'Automotive Control'. The cover photo features the IFAC'14 logo (19th World Congress Cape Town, 24-29 August 2014) on the left, a coastal landscape with waves crashing against a rocky shore in the center, and a leopard resting on the ground on the right. Below the cover photo is a navigation bar with tabs for 'Automotive Control', 'Membri', 'Eventi', 'Foto', and 'File'. To the right of the tabs are buttons for 'Notifiche', '+ Crea gruppo', and a search icon. The main content area includes a post creation section with options for 'Post', 'Foto/video', 'Domanda', and 'File', and a text input field 'Scrivi qualcosa...'. Below this is a notification from Gianfranco Rizzo stating 'ha aggiornato la foto del gruppo.' with a timestamp of '5 minuti fa'. The updated group photo is a collage of four images: the IFAC'14 logo, the coastal landscape, the leopard, and a stack of colorful, curved automotive parts. To the right of the main content is an 'INFORMAZIONI' sidebar showing '63 membri', 'Gruppo pubblico', a description of the group's purpose, and options to 'Invita tramite e-mail' and 'Aggiungi persone al gruppo'. At the bottom of the sidebar, there is a 'GRUPPI SUGGERITI' section with a suggestion for 'Soci StudentIngegneria'.

- 63 members up to now.
- All TC members subscribing appointed as “Group Administrator” to promote participation.



Automotive Control on LinkedIn



The screenshot shows the LinkedIn interface for the 'Automotive Control' group. At the top, there's a search bar and navigation tabs like Home, Profile, Connections, Jobs, Interests, Business Services, and Upgrade. A banner at the top of the group page asks 'Are You A President? - See If You're Eligible For Inclusion In Bristol Who's Who. Apply Now!'. The group name 'Automotive Control' is prominently displayed with a red arrow pointing to the '322 members' count. Below the name are tabs for Discussions, Promotions, Jobs, Members, Search, and Manage. A notification box prompts the user to 'Take a minute to set up your group for success.' and offers to 'Modify your Group's Settings'. The main content area features a large banner for the '19TH WORLD CONGRESS CAPE TOWN IFAC'14 24-29 AUGUST 2014' with a scenic image of a coastline. Below the banner is a 'Your Activity' section with a text input field for starting a discussion. The right sidebar shows 'Members of this Group' with a grid of member profiles, including Angelo Esposito, PhD, and a 'Your group contribution level' progress bar at 'Getting Started'. At the bottom, there's a sponsored post for 'GECO an application for real-time eco-driving' by Gilles Corde, Program Director at IFP Energies nouvelles, and another sponsored post for Nissan Motor Corporation.



TC CHAIR RENEWAL

- The IFAC Technical Board has established a procedure to identify suitable nominees for the new TC Chairs ([letter](#)). It is required, by November 15, 2013, to:
 - construct a list of the available candidates for the incoming TC chair;
 - organize a vote in the TC by email (if required, i.e. the list is not a singleton)
 - send the name of the preferred candidate to CC-chair and cc-ed to the IFAC secretariat.
- Further information:
 - The TC Chair in charge, Gianfranco Rizzo, is going to complete his second triennium and would be ineligible, according to the IFAC rules.
 - Current terms for TC Chairs expire in 2014 at the upcoming IFAC World Congress in Cape Town, South Africa.
 - The next term for the TC Chairs begins at the 2014 Cape Town Congress and terminates at the 2017 IFAC Congress in Toulouse, France.
 - The TC Chairs for 2014-2017 will be officially elected by the Incoming Technical Board.



TC Chair Renewal Process

- According to the procedure indicated by the IFAC Technical Board, a call for candidatures has been launched and diffused with bulletin on October 1st (<http://ymlp.com/zne8hl>).
- The candidatures have been collected by email, at the address info@ifac-automotivecontrol.org.
- Until the fixed deadline (October 15th) the candidature of **Lars Eriksson** has been received.
- According to the rules given in the TB letter (https://dl.dropboxusercontent.com/u/19347032/CL%20to%20TCchairs_2013.pdf), voting is not strictly required.
- Therefore, **LARS ERIKSSON HAS BEEN INDICATED TO CC-CHAIR FOR NOMINATION.**



AOB



PREPARATORY WORK FOR AAC16 BY LARS ERIKSSON



Proposals

- Periodic on-line meetings between chair, vice-chairs and TC Members via Skype, MSN or Video-Conference. → Problems due to time lag between USA, Europe and Japan!
- Useful time: Europe 2 PM, Japan 9 PM, USA (Eastern) 8 AM.
- Use of a social network for the TC? → Facebook, LinkedIn: some cooperation needed!
- Possible re-design of the website with the technology used for IFAC (Plone). Working group needed.