

Young Researchers Conference
At the 2015 IFAR Summit
Call for Nominations

The Young Researchers Conference (YRC) will again be held in conjunction with the annual IFAR Summit. For the past two years, the YRC has brought together early career researchers and students of aeronautics to share their research, discuss themes for international collaboration, and to address a specific questions for presentation to IFAR executives. In conjunction with the 2015 IFAR Summit being held during October, 2015, IFAR member nations are requested to bring at least 1-3 young researchers to the event for their own leadership and research symposium, and to share in networking activities with other young researchers and senior executives from around the world.

What: Young Researchers Conference at the IFAR Summit

As in previous years, nominees will be asked to present at the Summit their own research, and to develop a joint presentation on a topic developed in coordination with other young researchers. In addition, young researchers will be expected to interact and collaborate in advance of the event through IFARlink to accomplish this task. A tentative timeline can be found at the bottom of this document. **Participants will respond to a prompt (see below, in red) and prepare a presentation for discussion with IFAR executives.**

What ONE technology or process within the scope of IFAR's focus areas are anticipated to be the **"game-changers"** in aviation? Why? Based upon your answer, how do we best address the future needs of aviation?

Additionally, interested young researchers and other IFAR members are welcome to participate as **virtual attendees**. Virtual attendees are welcome at any time to participate in online discussions and virtual conferences in advance of the Summit by logging onto IFARlink (or registering as a first-time user) and visiting "Discussion Groups" → "YRN Conference" to participate in the forums and get updates about upcoming virtual conferences. Virtual participants may also watch broadcasts of the research symposium and final presentation at the Summit.

Who: IFAR member institutions' Young Researchers in Aeronautics under 40 years of age

Young researchers may be undergraduate, graduate, or doctoral students, or researchers currently working in the field of aeronautics and associated with an IFAR institution or agency. Nominees should have some research experience within at least one of IFAR's Five Focus Areas:

- Climate Change
- Noise
- Alternative Fuels
- Weather Impacts on ATM
- Air Transport Efficiency and Safety

Why: International Collaboration

The goal of IFAR is to foster international collaboration on aeronautics topics. This program will help young researchers to find opportunities for international collaboration, foster new and innovative ideas and solutions for aeronautics, and share those ideas with leaders in aviation research.

When: Pre-Activities: 15 May – September 2015

YR Conference: 4 – 10 October 2015

Virtual activities will begin for all participants on 15 April on IFARlink. In-person participants must arrive in time for activities beginning on the afternoon of 4 October, a few days in advance of the Summit. This will allow for team-building and leadership exercises, networking and social opportunities, interactions with NASA senior researchers at the NASA Ames research center, and further preparations for their project.

Where: NASA Ames Research Center, Moffet Field, CA, USA

How: Nominate your Young Researchers to Attend

Work with your IFAR member institution to select Young Researchers to attend the conference in person (virtual participants do not need any nomination, but should join by 15 May to begin with all other participants). Please send an email with contact information for your nominees to the NASA IFAR YRN Point of Contact, Rebecca E. Vieyra at rebecca.e.vieyra@nasa.gov by 15 April, 2015. (If more time is needed, please let me know approximately how many young researchers you plan to nominate by 15 April, and provide the details by 15 May).

In your e-mail, please include the following information about your Young Researcher:

Name

Age

Position/Title (undergrad./grad./doctoral student, employee, etc.)

Affiliation (company, agency, university, etc.)

Research Area

Proposed Presentation (tentative title / *informal* abstract)

**Note: Please ensure that travel funding is available through your institution when nominating Young Researchers. Please note, accommodations near NASA Ames cost approximately \$65 USD per night. A shuttle bus will be available for transportation to and from the hotel to Ames.*

Tentative Agenda:

The following is a *tentative* agenda. With the end goal to encourage collaboration, it is important that young researcher nominees be willing to invest a few hours each month prior to the Summit to get to know other nominees, participate in discussion groups, share their knowledge and insight, engage in short virtual conferences organized through the NASA Aeronautics Research Institute (NARI) to develop ideas for presentation at the Summit, and learn from expert researchers and administrators.

Young researcher exchanges will be facilitated by the NASA IFAR YRN Point of Contact, Rebecca E. Vieyra: rebecca.e.vieyra@nasa.gov

The Young Researcher Conference will be run by NASA Ames' Huy Tran, and the symposia and discussions will be guided by Huy Tran and DLR's Rainer Scharenberg and Brigitte Doberstein.

April 15 (Now) – May 1: Young researcher nominees selected by IFAR member nations.

May 15: Young researchers introduce themselves on IFARlink, and self-organize into one or more *RESEARCH groups* based upon research areas / interests of participants. Possible groups could include:

- A. Aircraft Design
- B. Materials, Tools, Processes
- C: Engines, Propulsion
- D. Fuel, Energy Sources
- E: ATM, Operational Processes

Young researchers begin to address the question within their group:

What ONE technology or process within the scope of IFAR's focus areas are anticipated to be the "**game-changers**" in aviation? Why? Based upon your answer, how do we best address the future needs of aviation?

IFAR administrators and senior researchers are welcomed to take part in and observe these discussions.

Each thematic expert group prepares a brief presentation for sharing the following month through a virtual conference.

June 24: Young researchers participate in **Virtual Conference #1** through NARI portal – each *RESEARCH group* presents their answers to the questions. Senior researchers and/or executives from IFAR member nations will be invited for discussion. Specifically, *RESEARCH groups* will identify what they believe to be the game-changer in future aviation, and should consider the following IFAR Themes in relation to the prompt – **How well is the identified game-changing technology currently being addressed by research within the five IFAR-themes? What successes have we had in these areas to support this game-changing technology, and what gaps remain to be filled?:**

- A. Ecological Impact and Solutions: Climate, Alternative Fuels, Efficiency, ATM
- B. Safety and Convenience: Weather, Noise, ATM

July 15: Young researchers participate in discussion forums on IFARlink based upon their presentation feedback, and then form *new GAME-CHANGER groups*. Following Virtual Conference #1, YR's might find that what they believe to be the future game-changing technology is outside of the scope of their research area. YR's will be encouraged to form new groups to get new perspectives. *Game-changer groups* now begin to prepare for the next Virtual Conference (see below).

August 26: Young researchers participate in **Virtual Conference #2** through NARI portal – each *GAME-CHANGER group* presents their answers to the questions in the prompt. Senior researchers and/or executives from IFAR member nations will be invited for discussion. Specifically, *GAME-CHANGER groups* will identify what they believe to be the game-changer in future aviation, and should consider how *external factors influencing aviation and aviation research must change for the game-changing technology to be successful* – **How well is the identified game-changing technology currently being supported (or hindered) by the following external influences? What must change in order for necessary aviation research to progress?**

- A. Policy
- B. Economy
- C. Business
- D. Society

September: Young researchers consider their identified game-changer in aviation in light of IFAR's Five Themes and aviation's external influences on research. Young researchers begin discussions for what and how they will present their answer(s) formally at the Summit.

October: Young researchers arrive on October 4. Possible agenda during the event would include:

October 4 (Sunday - afternoon only):

- Meet and greet other IFAR YR's
- Group Team Building (NASA Ames will hire a professional Human Resources staff to lead YR's in outdoor games associated with getting to know each other, teamwork, role, responsibility, and leadership)
- Motivational Speaker on Leadership

October 5 (Monday):

- Tour of Ames to see facilities and meet senior researchers
- Meeting with Ames young aerospace researchers - a very international group!
- Structured networking and discussion between IFAR YR's who share similar RESEARCH areas

October 6 (Tuesday - Summit Begins):

- Meet in GAME-CHANGER groups to plan final presentation
- YR's attend opening presentations at Summit
- 19:00-20:00 - NASA-hosted reception at the Hyatt

October 7 (Wednesday):

- YRN Symposium and Discussions guided by NASA and DLR (2-3 Strands, focused by broad topics such as Flight Physics and Structures, with ample time for meaningful discussion)
- 10:30 - 12:00 - YR's present their involvement in IFARlink for international collaboration, give an overview of IFARlink and their YRN experience

October 8 (Thursday): Final project discussions

- YRN Symposium Discussions guided by NASA and DLR - All strands come together to discuss the impact of their research on *aircraft design* and *ATM*.
 - How does the aerodynamic configuration of the future airborne transport system look like? What can we say about its flight envelope? How does this configuration match with the needs of traffic and transport?
 - What kind of propulsion system is needed for this flight envelope?
 - What kind of materials do the designers need for meeting these future requirements?
 - What is the impact of all of these new technology on CO₂ emissions and noise?

- 1:00-2:30 - PROJECT PRESENTATION
 - 19:00 – 22:00 – Group dinner at the Hyatt
- October 9 (Friday):** Closing Summit activities
October 10 (Saturday): Optional sight-seeing activities

November: Hopefully, continued collaboration and new relationships formed.

Timeline for Approval Process:

- March 10 – IFAR SC meeting / initial discussions
- March 10 – NASA HQ approval (Dr. Shin & Jon)
- March 12 – NASA Ames approval (Dr. Tran)
- March 18 – YRN WG 7th meeting / discussions, Release of Call for Nominations
- March 27 – Final comments by YRN WG and Steering Committee
- March 28 – Release of FINAL Call for Nominations
- May 1 – Final selection of nominees (send to Rebecca)
- April 30 – YRN SWG2 meeting/discussions
- May 15 – Thematic groups form on IFARlink
- May 20 – YRN WG 8th meeting / reflection on thematic groups
- June 14-18 – Paris Meeting / reflection on process
- June 24 – Virtual Conference #1 (after Paris meeting)
- July 22 – YRN WG 9th Meeting / reflection on process
- August 26 – Virtual Conference #2

