

# The ICFA Beam Dynamics Panel

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Yunhai Cai, ICFA BDP Chair

September 27, 2022

# ICFA Beam Dynamics Panel Members



## ○ Outstanding members

## ○ Well balanced in:

- Continents
- Accelerator types
- Expertise in beam dynamics

## ○ Most issue editors of the ICFA BDP Newsletters

## ○ Approval of the ICFA Beam-Dynamics Mini-Workshops

| Name                     | Institution | Nation      | Research                  |
|--------------------------|-------------|-------------|---------------------------|
| Rick Baartman            | TRIUMF      | Canada      | Cyclotrons and Linacs     |
| Oliver Boine-Frankenheim | GSI         | Germany     | Proton Accelerators       |
| Maria Enrica Biagini     | INFN        | Italy       | e+e- Colliders            |
| John Byrd                | ANL         | USA         | Synchrotron Light Sources |
| Yunhai Cai (chair)       | SLAC        | USA         | Single-Particle Dynamics  |
| Jie Gao                  | IHEP        | China       | e+e- Colliders            |
| Ajay Ghodke              | RRCAT       | India       | SCRF                      |
| Eliana Gianfelice-Wendt  | FNAL        | USA         | Spin Dynamics             |
| Sergey Ivanov            | IHEP        | Russia      | Proton Accelerators       |
| In-Soo Ko                | POSTTECH    | Korea       | Free Electron Laser       |
| Elias Metral             | CERN        | Switzerland | Collective Instability    |
| Peter Ostroumov          | MSU         | USA         | Ions Accelerators         |
| Mark Palmer              | BNL         | USA         | Muon Colliders            |
| Christopher Prior        | STFC        | UK          | FFA Accelerators          |
| Ji Qiang                 | LBNL        | USA         | Beam Simulations          |
| Yuri Shatunov            | Budker      | Russia      | Spin Dynamics             |
| Yoshihiro Shobuda        | J-PARC      | Japan       | Proton Rings              |
| Jiu-Qing Wang            | IHEP        | China       | Collective Instability    |
| Rainer Wanzenberg        | DESY        | Germany     | Electron Storage Rings    |
| Zhengtang Zhao           | SINAP       | China       | Synchrotron Light Sources |

- 1) 65<sup>th</sup>: eeFACT22, September 12-15, 2022, High Luminosity Factories, chaired by Marica Biagini (INFN) at Frascati, Italy
- 2) 66<sup>th</sup>: ERL22, October 3-6, 2022, Energy Recovery Linacs, to be chaired by Georg Hoffstaetter (Cornell University) at Ithaca, New York, USA
- 3) 67<sup>th</sup>: FLS 2023, August 28 to September 1<sup>st</sup>, 2023, Future Light Sources, to be chaired by Braun Hans-Heinrich (PSI) at Lucerne, Switzerland
- 4) 68<sup>th</sup>: HB2023, October 9-13, 2023, High Intensity and High-Brightness Hadron Beams, to be chaired by Elias Metral (CERN) at Geneva, Switzerland

## Overview

- Four major workshops repeat every two years
- Each year, there are to two workshops
- Formally approved by ICFA
- Required proceedings managed by JACow
- Very large, organized and documented almost like major conferences
- Lack of depth in proceedings

- 1) **Fixed Field Alternating Gradient, September 25-30, 2022**, being chaired by Christopher Prior (STFC), Abingdon, United Kingdom



- 2) **Space Charge, October 24-26, 2022**, to be chaired by Kiersten Ruisard (ORNL) and Sarah Cousineau (ORNL), Knoxville, USA
- 3) **Machine Learning Applications for Particle Accelerators, November 1-4, 2022**, to be chaired by Sandra Biedron (UNM), Kevin Brown (BNL), Chicago, USA

## Overview

- Focus on research topics
- Required approval by the Beam Dynamics Panel
- No proceeding required
- Often a series as well
- Sometime, documented as an issue of **the ICFA Beam Dynamics Panel Newsletter**

# ICFA Beam Dynamics Panel Newsletters



#83 April 5, 2022:  
Advanced concepts (Philippe Poit)  
#84 October 15, 2022:  
Cyclotrons (Rick Baartman)  
#85 April 2023:  
e+e- Colliders (Marica Biagini)

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Journal of Instrumentation

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ICFA Beam Dynamics Panel Newsletters Special Issue

The [International Committee for Future Accelerators](#) (ICFA) was created in 1976 by the Particle and Fields Division of the International Union of Pure and Applied Physics (IUPAP) to promote international collaboration towards construction and use of accelerators for high energy physics.

**Collaborating with Panel on Advanced and Novel Accelerators**

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ICFA Beam Dynamics Newsletter#83 – Beam Dynamics Challenges in Advanced Accelerator Concepts  
[+ View Newsletter#83](#)

ICFA Beam Dynamics Newsletter#82 – Advanced Accelerator Modelling  
[+ View Newsletter#82](#)

ICFA Beam Dynamics Newsletter#81 – Electron Lenses for Modern and Future Accelerators  
[+ View Newsletter#81](#)

ICFA Beam Dynamics Newsletter#80 – Medium Energy Heavy Ion Facilities  
[+ View Newsletter#80](#)

ICFA Beam Dynamics Newsletter#79 – Space Charge  
[+ View Newsletter#79](#)

## Statement:

I plan to work with my colleagues in the panel to encourage more regular workshops so that they are documented in the proceedings. Finally, I will try to promote a common standard for description of components in particle accelerators and use it record and preserve the existing accelerators and perhaps the past ones.

E. Keil, “Computer Programs in Accelerator Physics,” AIP, 1985

## Overview

- Standard Input Format (SIF) is enormously successful but still not uniformly adopted, for example SAD and ELEGANT
- Huge time is wasted in translations, do not mention loss of information
- Extensions are necessary, for example nested quadrupoles inside solenoid