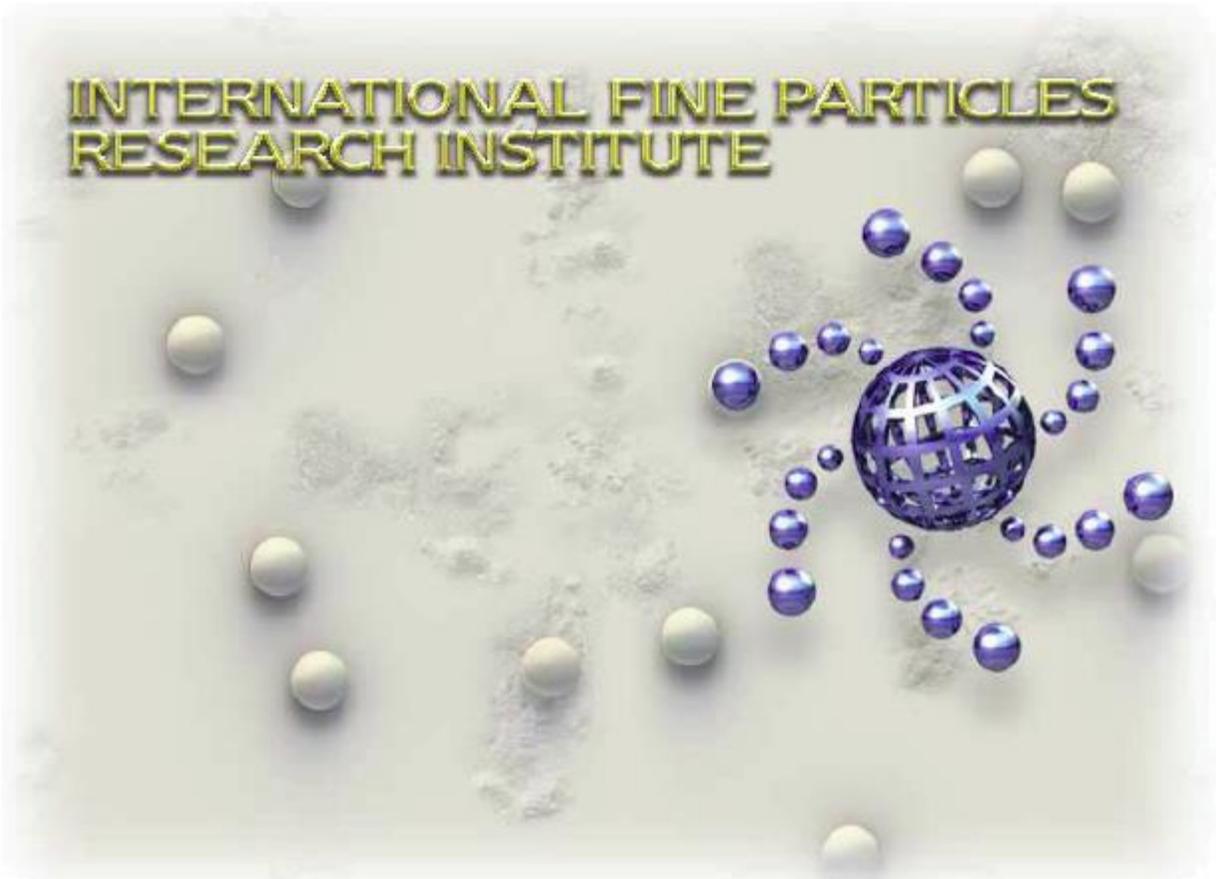


# INTERNATIONAL FINE PARTICLES RESEARCH INSTITUTE



## 2024 AGM Briefing Notes

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The 46<sup>th</sup> IFPRI Annual General Meeting is fast approaching. We're hosted by Nasser Ashgriz of the University of Toronto, and the meeting hotel is the Toronto Hilton. Like last year, we'll be running a "partially virtualized" meeting, with major parts of it being provided for remote attendance using Zoom. The agenda indicates which sessions are web accessible. Note that the meeting runs from *Saturday through Wednesday*, June 15-19.

The information you need to prepare for the AGM is being uploaded to the 2024 AGM Materials Page. For ongoing projects, we're posting 20-minute presentation videos, presentation slides, and project abstracts (which are a convenient way of distributing project summaries in your companies). For new and renewing projects, we're posting proposals, most of which have been revised in response to feedback from the winter meeting. Since the objective of the AGM is to provide feedback on ongoing projects and select which proposals to fund, it's critical to review these materials prior to the meeting.

The AGM is preceded by a workshop on powder reconstitution (Powders into Liquids and Liquids into Powders) on June 13-14. Parts of this can also be attended virtually.

### **AGM Agenda Revision**

To respond to a common complaint that we each get "trapped" into a single breakout session in the strategic planning (brief generation) session, we have reorganized the agenda to have two of these sessions, on Sunday and Monday afternoons. Sunday's session will cover formation, size reduction, and characterization. Monday's session will cover wet systems, dry systems, and systems engineering. The project presentations and posters are split into two sessions as well, which hopefully makes the project review process more humane for members and academics (it also allows the academics a chance to see half of the posters). We're asking our consultants to give their summary of their concentration areas at the beginning of the strategic planning sessions (rather than on the last day of the meeting), as this is useful input to the brief generation process. To free up time for the second strategic planning session, we're making the student poster session an evening session, supported with food and drink.

### **Status of the Technical Program**

The 2023-2024 technical program is summarized in Tables 1 and 2. We funded 17 full projects, three collaboration projects, four reviews (one carryover from 2022-3), and two workshops last year. The workshop on recycling of scrap materials failed to get off the ground; we should discuss whether to keep this on the project list at the meeting.

Only one project finishes this year (shown in red in Table 1) – Mike Doherty's project on crystal shape prediction. Mike, unfortunately, has a scheduling conflict and won't be able to attend the meeting. He's sending his student to stand in for him, and he also promises to attend next year's AGM to update us on the ADDICT software. Three projects are being considered for renewal (shown in yellow). We funded three collaborations, including the 3-way collaboration between Envalior (Peter Vonk and Eric Grolman), Sandia (Jeremy Lechman) and Ken Kamrin to make Ken Kamrin's continuum powder flow model portable into industry. The start of the collaboration between Mike Howard and Jan Vermant was delayed, so we have invited Mike to attend the AGM this year and present the results of the collaboration next year. We

also sent out three new project briefs and have received one proposal each for the segregation of cohesive powders and syneresis briefs and two proposals for the framework for multicomponent compaction brief. Adding all of this up, *we will have at least four project slots to fill and six new or renewal project proposals to choose from when we vote on Wednesday at the AGM.*

Type	No.	C	SR	F	D	W	SE	Project	Research Associate	Institution	Country	End
Projects	1			X		X		Crystal Shape Prediction	M. Doherty	UCSB	US	2024
	2			X				Spray Drying Kinetics and Morphology	Maciej Jaskulski	U. Lodz	Poland	2024
	3				X			Selection of Flow Aids	Raj Dave	NIJT	US	2024
	4			X	X			Air-Induced Defect Formation During Compaction	Ken Kamrin	M.I.T.	US	2024
	5	X		X		X		Characterization of Spray Nozzles at Industrial Conditions	N. Ashgriz	U. Toronto	Canada	2025
	6	X				X		Slurry and Paste Rheology	E. Koos	U. Leuven	Belgium	2025
	7	X				X		Aeration & Deaeration of Geldart C Powders	Olivier Pouliquen	Aix Marseille U.	France	2025
	8	X		X	X	X		Drying of Wet Powders with Shear to Prevent Agglomerate Formation	Alban Sauret	UCSB	US	2025
	9			X		X		Spray Drying of Pastes to Improve Sustainability	Volker Gaukel	KIT	Germany	2025
	10	X		X		X	X	Numerical Modeling of Spray Droplet Formation	Olivier Desjardins	Cornell U.	US	2025
	11	X		X			X	Model-based Design of Granular Products	R. Smith	U. Sheffield	UK	2026
	12	X					X	Simplified Industrial Formulations of Colloidal Dispersions	J. Vermant	ETH	Switzerland	2026
	13	X	X			X	X	A Systems Engineering Approach to Dry-Milling with Grinding Aid Additives	A. Kwade	TU Braunschweig	Germany	2026
	14					X	X	Precision powder feeding	P. Nott	IISc Bangalore	India	2026
	15					X		Predicting Powder Flow from Flexible-Wall Containers	M. Jones	U. Newcastle	Australia	2027
	16				X			Porosity Development During Drying	Reza Kharagani	OVGU Magdeburg	Germany	2027
	17	X					X	Understanding Accelerated Aging of Gels	Lilian Hsiao	NCSU	USA	2027
Collab	1	X				X	X	Simulation of Colloidal Dispersions	Jan Vermant, Mike Howard	ETH, Auburn U.	Switzerland, USA	2024
	2	X			X	X	X	Simulation of Slurries	Erin Koos, Joost de Graaf	KU Leuven, Utrecht University	Netherlands	2024
Other					X		X	Continuum Flow Modeling	Ken Kamrin	M.I.T.	US	2024
					X		X	ASTM Guide Development for DEM	Kit Windows-Yule	U. Birmingham	UK	2024
Workshop							X	From Dry Powder to Wet Slurry	Judith Bonsall	Unilever		2024
			X					Circular economy of production scrap and complex materials	Jarrold Hart	Imerys		2025

Table 1: 2022-2023 Projects

Type	No.	C	SR	F	D	W	SE	Project	Research Associate	Institution	Country
Reviews	1				X		X	Modeling Gas-Particle Transport in Mills and Classifiers	Jesse Capelecatro	U. Michigan	USA
	2	X				X		Tribology, Friction, and Contact Mechanics in Wet Systems	Lucio Isa	ETH Zurich	Switzerland
	3						X	Applications of Artificial Intelligence in Particle Technology	Antoinette Tordesillas	U. Melbourne	Australia
	4							Surface Relaxation of Dry-Milled Materials	Teresa Carvajal	Purdue U.	USA
Proposals	1				X		X	Segregation of Cohesive Powders	Rich Lueptow, Kimberly Hill	Northwestern U, U. Minnesota	USA, USA
	2					X		Syneresis	Emanuela Del Gado, Thomas Kodger	Georgetown U, U. Wageningen	USA, Netherlands
	3			X			X	Predictive Framework for Composite Compact Strength	Marcial Gonzalez, Farhang Radjai, Saeid Nezamabadi	Purdue U, U. Montpellier	USA, France

Table 2: 2022-2023 Reviews and New Project Briefs

### Balance of the Technical Program

One of the challenges of managing IFPRI’s technical program is to develop a project portfolio that is balanced and meets the needs and interests of our members. IFPRI veterans know that we use project categories to measure the balance of the program among our concentration areas: wet systems, dry systems, formation, size reduction, characterization, and systems engineering. This categorization scheme is a bit arbitrary, as many projects belong to multiple categories. As a result, we recently began to assign multiple categories to each project. Both categorization schemes are shown in Table 1, with the red “X” denoting the master category. The two pie charts below show the project distributions in these two schemes.

Based on the single-category scheme (right-hand chart), our program is over weighted in formation and dry systems and severely underweighted in size reduction and characterization. The multi-category scheme is more balanced, however it also indicates that size reduction is underweighted.

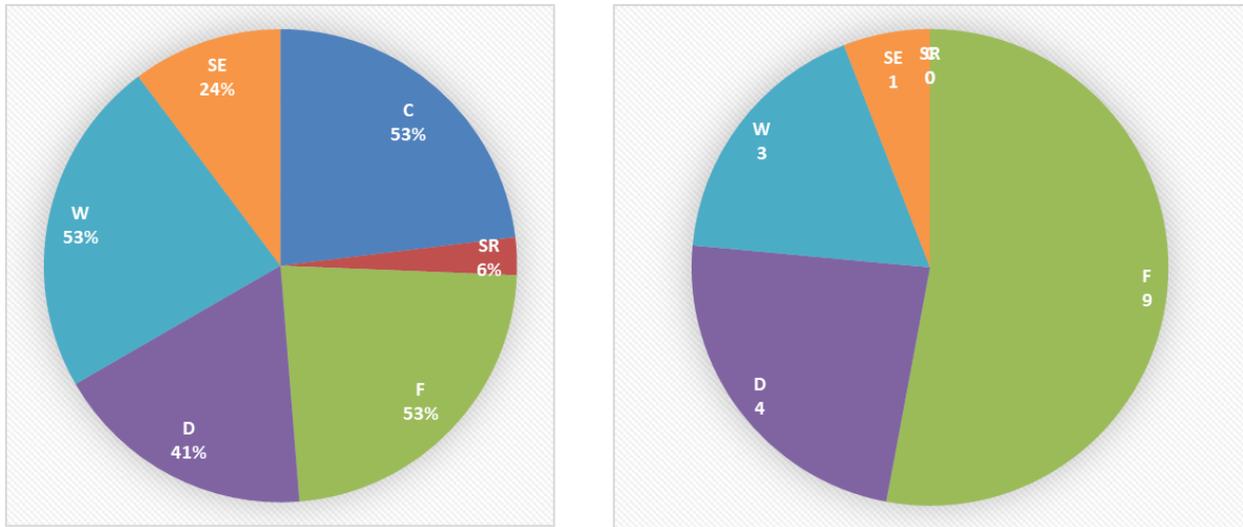


Figure 1: Balance of the technical program

### Some Items for Discussion at the AGM

#### *Succession Planning*

Willie Hendrickson and Judith Bonsall both warned us of their impending retirement at last year's AGM. The clock has run out, and we must vote on their successors. We will also have to select a new Vice Chair, since Simon Greener is currently the sole candidate for Chair (Judith's position). So, the slate of candidates is:

- President: Filip Francqui, Granutools
- Chair of the Board: Simon Greener, Proctor & Gamble
- Vice-Chair of the Board: Isabelle Daleris, Cargill

#### *Strategic Gaps in the Technical Program*

We've added a new session at the end of the technical part of the meeting (Tuesday afternoon) that we're calling a roundtable discussion of the technical program. The intent of this is to identify strategic gaps in the program, i.e. significant technologies, particularly emerging ones, that are absent from our portfolio of projects.