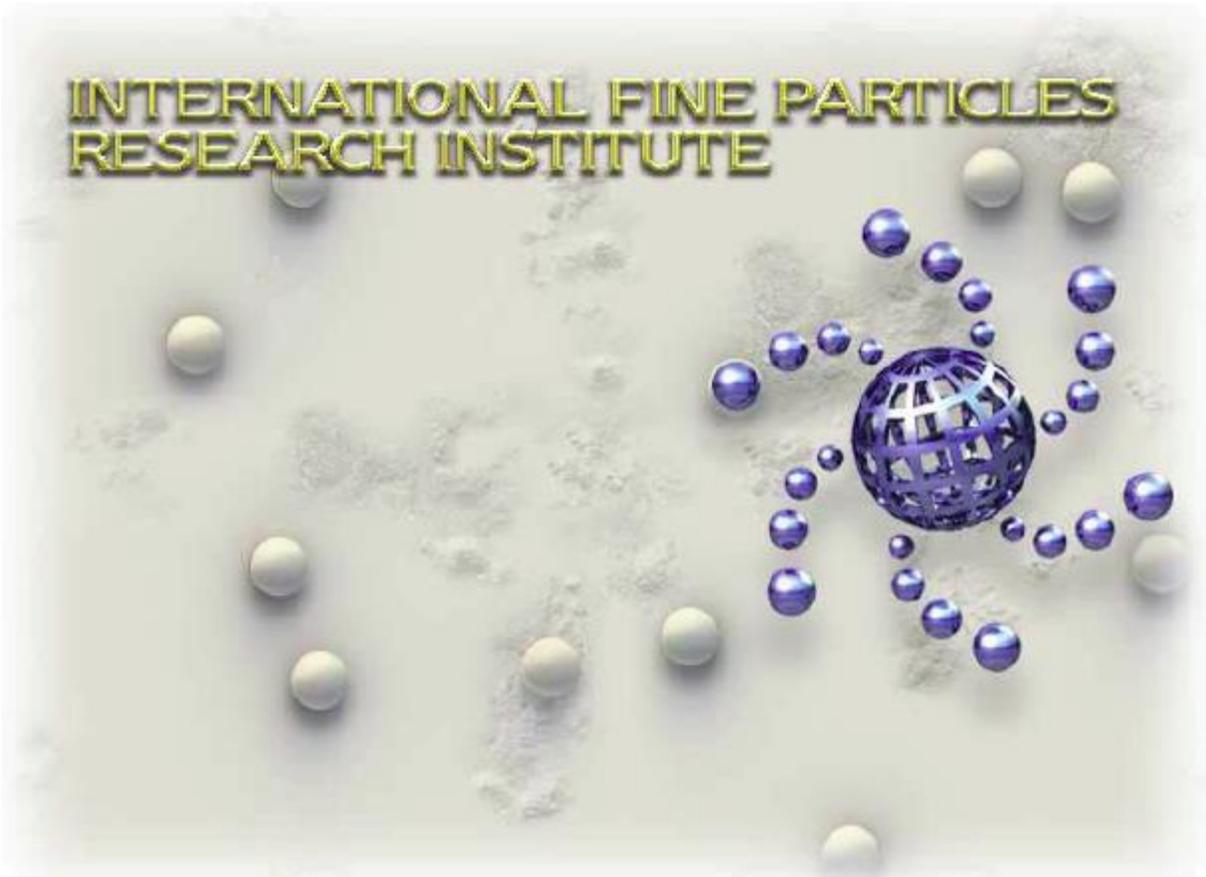


INTERNATIONAL FINE PARTICLES RESEARCH INSTITUTE



2023 AGM Briefing Notes

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The 45th IFPRI Annual General Meeting is fast approaching. We're hosted by Zoli Nagy and Paul Mort of Purdue University, and the meeting hotel is the Holiday Inn Centre City in neighboring Lafayette, Indiana. 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.

The AGM agenda is essentially the same as last year. The initial business meeting will be held virtually on Wednesday, May 17. Willie will present a preliminary budget which provides a basis for next year's technical program. The AGM runs from Sunday through Thursday, June 11-15. The first three days are focused on reviewing the ongoing projects and developing topics for new projects. On Sunday and Monday, the project review is done in two parts: short presentations (no Q&A), followed by a rotational poster session. Briefs for new projects and workshops will be developed in brainstorming sessions on Tuesday and ad hoc small-group meetings on Tuesday and Wednesday. We'll discuss and prioritize renewal and new project proposals on Wednesday and make final selections for the 2023-2024 technical program on Thursday.

All of the information you need to prepare for the AGM is being uploaded to the 2023 AGM Meeting Materials Page (sorry for the redundancy!). 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 modeling of powder flow on June 9-10. This can also be attended virtually.

IFPRI membership continues to grow. We will have at least 40 members by the AGM, which is as large as we've ever been. This creates some significant opportunities as well as some challenges which we'll need to discuss at the AGM. I outline some of the impacts later in these notes.

Status of the Technical Program

The 2022-2023 technical program is summarized in Tables 1 and 2. We funded 17 full projects, four collaboration projects, three reviews, and two workshops last year. One of the collaborations (Hsiao/Vermant) was funded last year, and Lilian presented preliminary results at the AGM, however the work is being completed this year. All three reviews were commissioned, however the author of the review on modeling of particle flow through mills and classifiers (Jesse Capelecatro, U. Michigan) asked to defer his review for a year, as he is currently on sabbatical leave. Only one of the workshops was organized – modeling of powder flow.

Two projects are finishing this year (shown in red in the table), and five are being considered for renewal (shown in yellow). We also sent out four new project briefs and have received two proposals each for three of them. The fourth brief, "Continuum Modeling of Powder Flow in Industry", morphed from a regular project to a new kind of industry-academic collaboration, and Eric Grolman and Pieter Vonk (DSM)

are developing a proposal for your consideration. Adding all of this up, we will have at least seven projects slots to fill and nine new or renewal project proposals to choose from when we vote on Thursday at the AGM.

Type	No.	C	SR	F	D	W	SE	Project	Research Associate	Institution	Country	End	Term
Projects	1	X	X	X			X	Model-Based Control of Crystallization	Z. Nagy	Purdue U.	US	2023	2
	2				X		X	DEM Roundrobin	J. Seville; K. Windows-Yule	U. Birmingham	UK	2023	2
	3			X	X			Powder adhesion to metal surfaces during compaction	C. Sinka	U. Leicester	UK	2023	1
	4	X		X			X	Model-based Design of Granular Products	R. Smith	U. Sheffield	UK	2023	1
	5	X				X		Simplified Industrial Formulations of Colloidal Dispersions	J. Vermant	ETH	Switzerland	2023	1
	6	X	X		X		X	A Systems Engineering Approach to Dry-Milling with Grinding Aid Additives	A. Kwade	TU Braunschweig	Germany	2023	1
	7				X		X	Precision powder feeding	P. Nott	IISc Bangalore	India	2023	1
	8			X		X		Crystal Shape Prediction	M. Doherty	UCSB	US	2024	2
	9			X				Spray Drying Kinetics and Morphology	Maciej Jaskulski	U. Lodz	Poland	2024	1
	10				X			Selection of Flow Aids	Raj Dave	NJIT	US	2024	1
	11			X	X			Air-Induced Defect Formation During Compaction	Ken Kamrin	M.I.T.	US	2024	1
	12	X		X		X		Characterization of Spray Nozzles at Industrial Conditions	N. Ashgriz	U. Toronto	Canada	2025	2
	13	X				X		Slurry and Paste Rheology	E. Koos	U. Leuven	Belgium	2025	2
	14	X			X			Aeration & Deaeration of Geldart C Powders	Olivier Pouliquen	Aix Marseille U.	France	2025	1
	15	X		X	X	X		Drying of Wet Powders with Shear to Prevent Agglomerate Formation	Alban Sauret	UCSB	US	2025	1
	16			X		X		Spray Drying of Pastes to Improve Sustainability	Volker Gaukel	KIT	Germany	2025	1
	17	X		X		X	X	Numerical Modeling of Spray Droplet Formation	Olivier Desjardins	Cornell U.	US	2025	1
Collaboration	1	X				X	Simplified Industrial Formulations of Colloidal Dispersions Collaboration	Lilian Hsiao Jan Vermant	NCSU ETH	USA Switzerland	2022-3		
	2	X			X		Non-local Rheology	Karen Daniels Prabhu Nott	NCSU IISc Bangalore	USA India	2023		
	3	X		X			Model Calibration as a Tool for Materials Characterization	Rachel Smith Daniel Markl	U. Sheffield U. Strathclyde	UK	2023		
	4					X	Simulation of Colloidal Dispersions	Roseanna Zia Jan Vermant	Stanford University ETH	US Switzerland	2023		
	4				X		tbd	Nico Gray Ken Kamrin	U. Manchester M.I.T.	UK US	2023		

Table 1: 2022-2023 Projects

Type	No.	C	SR	F	D	W	SE	Project	Research Associate	Institution	Country
Reviews	1	X						Particle Shape Characterization	Basarajav Gurappa	IIT Madras	India
	2	X						Porosity and Pore Saturation Characterization	Matthias Thommes	FAU	Germany
	3						X	Modeling Gas-Particle Transport in Mills and Classifiers	Jesse Capelecatro	U. Michigan	USA
Proposals	1					X		Understanding Accelerated Aging of Gels	Lilian Hsiao Luca Cipelletti	NCSU U. Montpellier	USA France
	2				X			Continuum Modeling of Powder Flow in Industry	Eric Grolman to propose an industrial collaboration		
	3				X			Predicting Powder Flow from Flexible-Wall Containers	Mark Jones V. Kumaran	U. Newcastle IISc Bangalore	Australia India
	4			X				Modeling Porous Structure Development in Drying	Paul Mulheran Abdolreza Kharagani	U. Stathclyde OVGU Magdeburg	UK Germany

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.

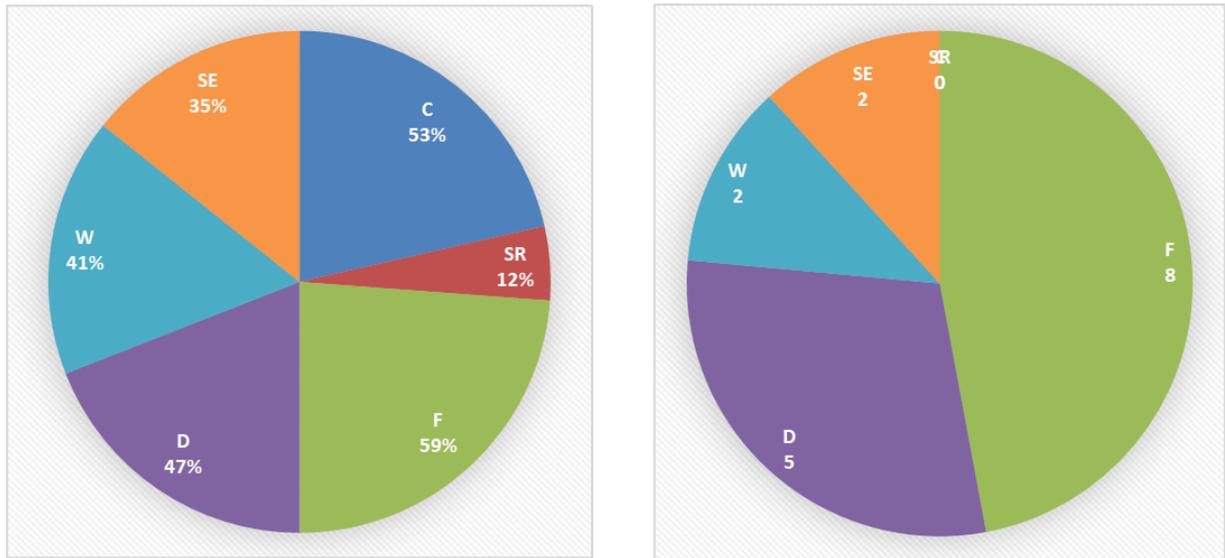


Figure 1: Balance of the technical program

Some Items for Discussion at the AGM

Impact of Growth of Membership

IFPRI membership will be at a historic high in 2023-2024 (with thanks to Willie's recruitment prowess). This is overwhelmingly positive for us, as it allows us to expand our global impact on research and education in particle science and engineering. It also means that our budget and the number of meeting attendees each increase. We need to discuss how to adapt to both.

The number of meeting attendees and the number of projects we can manage are both coupled with how we organize the AGM. From the beginning, IFPRI has run the meeting in a single track, so that every attendee is able to attend every presentation. The project review process, with its combination of a short presentation followed by rotating poster session, is designed to allow every member representative the opportunity to discuss each project with the principal investigator in a small group setting. The duration of the meeting (and our stamina) limits the number of projects we can review during the AGM and hence the number of projects we can manage.

There is also an administrative impact of growth. This falls mainly on the President and Vice President, however expansion of the technical program means that the number of project briefs generated at the AGM and proposals reviewed for the winter meeting and AGM will increase. This load falls on the

members directly. The number of projects and proposals that *each* member company can review does not scale with the number of members!

We also should consider increasing the size of our project and review grants. The cost of academic research (like everything else) is increasing, and I am receiving an increasing number of requests from professors to increase our funding. I have asked our consultants to provide some data about research costs in their regions, and I'll summarize this for discussion at the AGM. Another factor that plays into this is the cost of running both IFPRI meetings. Meeting attendance fees are built into IFPRI dues (two attendees for full members, one for associate members). Hotel costs have increased massively over the past few years, and this has a direct impact on our budget.

Reviews

IFPRI reviews are one of the most appreciated features of membership, but they have always been difficult to commission, and increasingly they're not completed. In the early days of IFPRI, authorship of a comprehensive critical review was considered an important example of scholarship and rewarded accordingly. The academic value system has evolved and writing reviews (and textbooks) no longer provide academics significant recognition. Given how much effort is required to write a high-quality review, few academics are willing to devote the time to writing one.

Karen Hapgood has proposed a solution to this problem. She suggests that we turn our review commission into a named cash award and a travel grant to the AGM. We can offer multiple awards in different areas of particle technology. Each awardee presents a review on a topic of their choice as a keynote talk, and we can encourage them (with an additional grant) to write and publish their review. While IFPRI loses some control over the topic of the review, our probability of having reviews completed should increase (at the very least, we'll receive presentations) – along with our global visibility.

Workshops

Workshops have become an integral part of the IFPRI technical program. Last year, we voted to organize two workshops, but only one of them (on modeling of powder flow) has been organized.

Unlike projects and reviews, workshops require active involvement of a small group of member representatives for their organization: developing the workshop objectives, identifying and inviting speakers and discussion leaders, collecting and summarizing workshop outputs. They have a long lead time as well – Willie and I disagree, but I feel that six months is too short a time to pull a workshop together. Given that it's difficult to get started during the summer, if we want to organize two workshops, in conjunction with our meetings, they should probably be scheduled twelve and eighteen months ahead.

Workshops are a great way to define new project briefs and expand our academic and industrial networks, and organizing two per year is worth the effort. To ensure their success, we need to allow sufficient time for their organization and assure that the organizers have the necessary time and interest. At least one of our consultants should be on the organizing committee to help with outreach to academia. Willie and

I provide administrative support, but setting the agenda and selecting participants is the responsibility of the workshop organizing committee.

Succession Planning

Willie has announced that he will retire as IFPRI president at the 2025 AGM in Marseille. We need to begin the process of selecting his successor at this year's AGM. An agenda item in the final business meeting on Thursday will be considering nominations for the position. If you have a potential candidate in mind, please send their name to our nominations officer, Ninna Halberg Jokil (NIH@topsoe.com). We will interview candidates in 2023-2024 and vote at the 2024 AGM in Toronto.

Judith Bonsall has announced that she will step down as Chairman of the Board of Directors (aka Technical Chair) at the 2024 AGM. No action on this is needed this year, but we will vote for her successor at the 2024 AGM.