



IFPRI BRIEF TEMPLATE

Check One: **Project** **Review** **Collaboration**
 Workshop **Other**

Descriptive Title	Utilization of the Output Population Balance Model PSD to Predict Filtration and Drying Performance
Working Title¹	Systems Approach to an Integrated Crystallisation → Filtration → Drying Platform
Technical Area²	Systems Engineering
Date	June 2023
Short Description	With the developments in particle size and shape distribution control for crystallisers, we now need an understanding of the change on the resulting filtration and washing times, and subsequent drying time and behaviour. Or to direct selection of an alternative solid-liquid unit operation. For example, filtration of needles is frequently the bottleneck, but reducing the aspect ratio also comes with a reduction in the PSD. The best system solution for optimum cycle time is unclear without an integrated filtration/drying model.
Objectives	To relate the Population Balance Model output to the resulting filtration time. To relate the filter cake structure to the resulting drying time. Experimental confirmation of the models. Engage with younger researchers to keep interest in the area (Rajagopalan is an early career researcher, Anlauf is not but could make useful suggestions)
Scope	Processes where solids-liquid is required, and the PSD is known or predicted. 1D or 2D PBM input to the filter cake model. Centrifugation also in scope for solids separation.

Recommended Contractors (2 or 3)		
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Submitted By:	
Name	Organization
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¹ Title used in meeting agendas and file archives

² One or more from the following list: W = wet systems; D = dry systems; F = particle formation; SR = size reduction; M = modeling; SE = systems engineering

