**Check One: Project Review Collaboration**

**Workshop Other**

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| **Descriptive Title** | Implementation powder rheology in grid-free methods and testing  on Industrial challenges – continuation 2024 collaboration | | |
| **Working Title[[1]](#footnote-1)** | Industrial implementation powder flow continuous models | | |
| **Technical Area[[2]](#footnote-2)** | Dry Powder Flow / Systems | | |
| **Date** | June 17th, 2025 | | |
| **Short Description** | **Goal**  Enable industry to simulate large-scale solid flows in a reliable, easy-to-use open-source software package that is hosted and maintained by a reliable partner.  **Achievements**   * Hosted by Sandia National Laboratories as open source * Industry standard input (STL files) * Accurate rheology with input from shear tests * Mu-f(I) rheology with separation and reconsolidation * Updated to the latest LAMMPS edition (code rebase) * *New* method for boundary conditions with SPH (for STL) * Optimized code for boundary conditions * Implementation of cones and cylinder primitives   **To do**   * Dilatancy * Cohesion * Add fluid (gas) phase * Moving walls.   Involve IFPRI members  Put into mainstream LAMMPS (with documentation)  Add sample geometries  Master student project with TU-Delft for Granudrum simulation  (Johan Padding, Gabrie Meesters, Ruud van Ommen)  Required – 20k$ for coding support by former MIT PhD | | |
| **Recommended Contractors (2 or 3)** | | | |
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| **Submitted By:** | |
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| Alex Fry | P&G |
| Subash Thakur | Vertex Pharmaceuticals |

1. Title used in meeting agendas and file archives [↑](#footnote-ref-1)
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 [↑](#footnote-ref-2)