GENERAL INFORMATION

Title of Dataset: Source Data underlying the publication: Designing highly efficient interlocking interactions in anisotropic active particles

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Date of data collection: 2022-2024

SHARING/ACCESS INFORMATION

Licenses placed on the data: CC BY

DATA & FILE OVERVIEW

File List: Source Data underlying all results presented in the publication "Designing highly efficient interlocking interactions in anisotropic active particles". We have uploaded a csv file for all shapes and surface area fractions mentioned in our work. Each csv file contains the time at which the measurement was taken, the percentage of single particles at time t, the percentage of particles in a cluster of size n at time t, the computed quantity Nc/N at time t, the particle density at time t and the total sum of particles at time t. Details about our research objective and method of data collection can be found in the main text of the publication as well as in the SI.

DATA-SPECIFIC INFORMATION:

Column headings for count\_file\_rods\_phi=0.011%:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| # time in [min] | single rods in % | pair in % | N=3 in % | Nc/N | particle density [particles/mm^2] | sum of all particles |

Column headings for count\_file\_rods\_phi=0.028%:

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| # time in [min] | single rods in % | pair in % | N=3 in % | N=4 in % | N=5 in % | Nc/N | particle density [particles/mm^2] | sum of all particles |

Column headings for count\_file\_rods\_phi=0.059%:

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| # time in [min] | single rods in % | pair in % | N=3 in % | N=4 in % | N=5 in % | Nc/N | particle density [particles/mm^2] | sum of all particles |

Column headings for count\_file\_rods\_phi=0.095%:

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| # time in [min] | single rods in % | pair in % | N=3 in % | N=4 in % | N=5 in % | Nc/N | particle density [particles/mm^2] | sum of all particles |

Column headings for count\_file\_90deg\_phi=0.013%:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| # time in [min] | single crescents in % | pair in % | N=3 in % | N=4 in % | Nc/N | particle density [particles/mm^2] | sum of all crescents |

Column headings for count\_file\_90deg\_phi=0.023%:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| # time in [min] | single crescents in % | pair in % | N=3 in % | N=4 in % | Nc/N | particle density [particles/mm^2] | sum of all crescents |

Column headings for count\_file\_90deg\_phi=0.062%:

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| # time in [min] | single crescents in % | pair in % | N=3 in % | N=4 in % | N=5 in % | N=6 in % | Nc/N | particle density [particles/mm^2] | sum of all crescents |

Column headings for count\_file\_90deg\_phi=0.080%:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| # time in [min] | single crescents in % | pair in % | N=3 in % | N=4 in % | Nc/N | particle density [particles/mm^2] | sum of all crescents |

Column headings for count\_file\_180deg\_c-\_phi=0.022%:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| # time in [min] | single crescents in % | pair in % | N=3 in % | Nc/N | particle density [particles/mm^2] | sum of all crescents |

Column headings for count\_file\_180deg\_c-\_phi=0.039%:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| # time in [min] | single crescents in % | pair in % | N=3 in % | N=4 in % | Nc/N | particle density [particles/mm^2] | sum of all crescents |

Column headings for count\_file\_180deg\_c-\_phi=0.063%:

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| # time in [min] | single crescents in % | pair in % | N=3 in % | N=4 in % | N=5 in % | N=6 in % | Nc/N | particle density [particles/mm^2] | sum of all crescents |

Column headings for count\_file\_180deg\_c-\_phi=0.261%:

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| # time in [min] | single crescents in % | pair in % | N=3 in % | N=4 in % | N=5 in % | N=6 in % | N=7 in % | Nc/N | particle density [particles/mm^2] | sum of all crescents |

Column headings for count\_file\_180deg\_c+\_phi=0.008%:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| # time in [min] | single crescents in % | pair in % | Nc/N | particle density [particles/mm^2] | sum of all crescents |

Column headings for count\_file\_180deg\_c+\_phi=0.018%:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| # time in [min] | single crescents in % | pair in % | Nc/N | particle density [particles/mm^2] | sum of all crescents |

Column headings for count\_file\_180deg\_c+\_phi=0.024%:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| # time in [min] | single crescents in % | pair in % | Nc/N | particle density [particles/mm^2] | sum of all crescents |

Column headings for count\_file\_180deg\_c+\_phi=0.035%:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| # time in [min] | single crescents in % | pair in % | N=3 in % | Nc/N | particle density [particles/mm^2] | sum of all crescents |

Column headings for count\_file\_261deg\_phi=0.027%:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| # time in [min] | single crescents in % | pair in % | N=3 in % | Nc/N | particle density [particles/mm^2] | sum of all crescents |

Column headings for count\_file\_261deg\_phi=0.042%:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| # time in [min] | single crescents in % | pair in % | N=3 in % | N=4 in % | Nc/N | particle density [particles/mm^2] | sum of all crescents |

Column headings for count\_file\_261deg\_phi=0.077%:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| # time in [min] | single crescents in % | pair in % | N=3 in % | N=4 in % | Nc/N | particle density [particles/mm^2] | sum of all crescents |