Phase behaviour of hard board-like particles

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Supplementary Information

Table 1. Reduced pressure, packing fraction, uniaxial and biaxial order parameters of HBPs with L*=9 and W*=1. Absolute errors are lower than 5·10^{-3}

Phase	P^*	η	$S_{2.L}$	$S_{2.T}$	$S_{2.W}$	B_2
I	0.150	0.202	0.010	0.010	0.010	0.010
I	0.200	0.230	0.020	0.020	0.020	0.011
I	0.250	0.252	0.050	0.030	0.030	0.011
I	0.270	0.262	0.030	0.030	0.030	0.010
I	0.280	0.268	0.020	0.030	0.010	0.010
N$^+$	0.300	0.302	0.830	0.220	0.220	0.001
N$^+$	0.310	0.308	0.850	0.220	0.220	0.010
N$^+$	0.320	0.315	0.880	0.220	0.220	0.010
N$^+$	0.340	0.327	0.901	0.235	0.235	0.020
N$^+$	0.350	0.331	0.905	0.237	0.237	0.010
N$^+$	0.370	0.342	0.920	0.250	0.250	0.010
N$^+$	0.390	0.352	0.935	0.248	0.248	0.010
N$^+$	0.410	0.361	0.945	0.250	0.250	0.010
N$^+$	0.440	0.377	0.960	0.255	0.255	0.020
Sm$^+$	0.480	0.402	0.972	0.257	0.257	0.015
Sm$^+$	0.490	0.408	0.974	0.260	0.255	0.015
Sm$^+$	0.500	0.412	0.975	0.260	0.260	0.015
Sm$^+$	0.530	0.434	0.978	0.260	0.260	0.015
Sm$^+$	0.550	0.443	0.981	0.261	0.261	0.017
Sm$^+$	0.650	0.482	0.987	0.265	0.265	0.015
Sm$^+$	0.750	0.525	0.991	0.260	0.257	0.015
Sm$^+$	0.800	0.551	0.993	0.260	0.260	0.013
Sm$^+$	0.850	0.566	0.993	0.260	0.260	0.013
Sm$^+$	0.900	0.595	0.996	0.270	0.270	0.028
Sm$^+$/Col$^+$	1.000	0.620	0.997	0.254	0.254	0.004
Col$^+$	1.500	0.711	0.999	0.991	0.991	0.988
Col$^+$	2.000	0.765	1.000	0.995	0.995	0.993
Col$^+$	2.500	0.803	1.000	0.996	0.996	0.995
Col$^+$	3.000	0.830	1.000	0.998	0.998	0.997
Col$^+$	4.000	0.865	1.000	0.998	0.998	0.998
Col$^+$	5.000	0.890	0.999	0.999	0.999	0.999
K	7.500	0.924	1.000	1.000	1.000	0.998
K	10.000	0.941	1.000	1.000	1.000	0.998

Table 2. Reduced pressure, packing fraction, uniaxial and biaxial order parameters of HBPs with L*=9 and W*=2. Absolute errors are lower than 5·10^{-3}

Phase	P^*	η	$S_{2.L}$	$S_{2.T}$	$S_{2.W}$	B_2
I	0.070	0.207	0.001	0.001	0.001	0.001
I	0.100	0.238	0.020	0.020	0.020	0.020
I	0.160	0.287	0.040	0.025	0.022	0.010
I	0.175	0.300	0.050	0.020	0.020	0.020
I	0.200	0.319	0.087	0.023	0.040	0.010
I	0.215	0.332	0.084	0.051	0.032	0.005
I	0.220	0.336	0.100	0.050	0.050	0.000
N^+	0.221	0.357	0.760	0.215	0.185	0.010
N^+	0.225	0.366	0.840	0.235	0.210	0.012
N^+	0.230	0.372	0.850	0.240	0.220	0.010
Sm^+	0.235	0.388	0.865	0.223	0.223	0.010
Sm^+	0.240	0.391	0.530	0.220	0.210	0.001
Sm^+	0.300	0.458	0.950	0.250	0.250	0.005
Sm^+	0.350	0.492	0.938	0.250	0.240	0.005
Sm^+	0.400	0.533	0.988	0.269	0.269	0.016
Sm^+	0.450	0.567	0.990	0.270	0.270	0.031
Sm^+	0.500	0.599	0.992	0.281	0.281	0.036
Sm^+	0.550	0.643	0.995	0.972	0.972	0.965
Col^-	0.600	0.662	0.995	0.987	0.985	0.982
Col^-	0.700	0.693	0.997	0.991	0.989	0.988
Col^+	0.800	0.720	0.998	0.993	0.992	0.990
Col^+	0.900	0.747	0.998	0.994	0.993	0.992
Col^+	1.300	0.809	0.999	0.998	0.997	0.997
Col^+	1.500	0.828	0.999	0.998	0.998	0.998
Col^+	2.000	0.865	1.000	0.999	0.999	0.999
Col^+	3.000	0.906	1.000	0.999	0.999	0.999
K	5.000	0.942	1.000	1.000	1.000	1.000
K	10.000	0.971	1.000	1.000	1.000	1.000

Table 3. Reduced pressure, packing fraction, uniaxial and biaxial order parameters of HBPs with L*=9 and W*=3. Absolute errors are lower than 5·10^{-3}

Phase	P*	η	S$_{2.L}$	S$_{2.T}$	S$_{2.W}$	B$_2$
I	0.040	0.193	0.025	0.028	0.020	0.005
I	0.050	0.212	0.030	0.028	0.018	0.010
I	0.100	0.280	0.040	0.040	0.022	0.015
I	0.150	0.340	0.060	0.050	0.040	0.015
I	0.160	0.351	0.070	0.065	0.030	0.015
I	0.162	0.354	0.050	0.050	0.030	0.015
I	0.163	0.355	0.070	0.070	0.070	0.030
Sm$^+$	0.164	0.399	0.802	0.220	0.225	0.020
Sm$^+$	0.165	0.395	0.785	0.220	0.220	0.020
Sm$^+$	0.167	0.410	0.850	0.230	0.250	0.010
Sm$^+$	0.170	0.419	0.930	0.260	0.265	0.015
Sm$^+$	0.200	0.461	0.965	0.260	0.260	0.015
Sm$^+$	0.250	0.518	0.980	0.280	0.280	0.000
Sm$^+$	0.300	0.571	0.989	0.295	0.295	0.006
Sm$^+$	0.330	0.598	0.990	0.357	0.357	0.137
Col$^-$	0.380	0.645	0.992	0.957	0.954	0.927
Col$^-$	0.400	0.657	0.993	0.977	0.974	0.979
Col$^-$	0.450	0.683	0.994	0.988	0.986	0.954
K	0.500	0.706	0.995	0.990	0.988	0.961
K	0.600	0.723	0.990	0.993	0.985	0.989

Table 4. Reduced pressure, packing fraction, uniaxial and biaxial order parameters of HBPs with L*=9 and W*=3.5. Absolute errors are lower than 5·10^{-3}

Phase	P*	η	S$_{2.L}$	S$_{2.T}$	S$_{2.W}$	B$_2$
I	0.110	0.315	0.000	0.000	0.000	0.000
I	0.130	0.342	0.050	0.090	0.010	0.010
I	0.140	0.356	0.060	0.060	0.030	0.030
I	0.143	0.363	0.050	0.050	0.030	0.030
I	0.145	0.366	0.040	0.050	0.038	0.030
I	0.147	0.370	0.050	0.060	0.030	0.030
N$^-$	0.150	0.390	0.200	0.490	0.100	0.280
N$^-$	0.152	0.395	0.230	0.670	0.150	0.400
Sm$^+$	0.155	0.436	0.900	0.270	0.245	0.020
Sm$^+$	0.160	0.442	0.934	0.280	0.260	0.030
Sm$^+$	0.170	0.462	0.958	0.273	0.273	0.020
Sm$^+$	0.200	0.498	0.975	0.255	0.255	0.010
Sm$^+$	0.240	0.556	0.984	0.754	0.312	0.072
Sm$^+$	0.250	0.566	0.984	0.340	0.340	0.118
Sm$^+$	0.260	0.578	0.987	0.270	0.270	0.016
Col$^-$	0.280	0.612	0.988	0.973	0.969	0.965
Col$^-$	0.300	0.623	0.989	0.982	0.979	0.978
Col$^-$	0.310	0.634	0.990	0.983	0.979	0.977
Col$^-$	0.320	0.645	0.991	0.987	0.983	0.982
Col$^-$	0.330	0.653	0.992	0.989	0.985	0.984
Col$^-$	0.350	0.667	0.992	0.992	0.988	0.989
Col$^-$	0.360	0.672	0.993	0.992	0.988	0.989
Col$^-$/K	0.370	0.680	0.994	0.993	0.989	0.990
K	0.380	0.686	0.994	0.994	0.990	0.991
K	0.390	0.690	0.994	0.996	0.990	0.991
K	0.400	0.695	0.994	0.994	0.990	0.992
K	0.45	0.717	0.995	0.992	0.993	0.993

Table 5. Reduced pressure, packing fraction, uniaxial and biaxial order parameters of HBPs with L*=9 and W*=4. Absolute errors are lower than 5·10^{-3}

Phase	P^*	η	$S_{2.L}$	$S_{2.T}$	$S_{2.W}$	B_2
I	0.100	0.322	0.050	0.050	0.050	0.000
N$^-$	0.120	0.372	0.250	0.820	0.210	0.550
N$^-$	0.130	0.394	0.260	0.900	0.250	0.630
Sm$^+$	0.140	0.442	0.840	0.280	0.220	0.040
Sm$^+$	0.160	0.479	0.955	0.254	0.254	0.001
Sm$^+$	0.170	0.495	0.953	0.270	0.260	0.030
Sm$^+$	0.190	0.530	0.963	0.270	0.268	0.030
Sm$^+$	0.200	0.545	0.974	0.367	0.367	0.167
Sm$^+$	0.210	0.558	0.966	0.287	0.261	0.048
Sm$_B$	0.220	0.570	0.978	0.630	0.630	0.490
Col$^-$	0.230	0.593	0.980	0.790	0.780	0.716
Col$^-$	0.250	0.616	0.985	0.984	0.976	0.977
Col$^-$	0.260	0.626	0.988	0.982	0.975	0.974
Col$^-$	0.270	0.635	0.990	0.980	0.975	0.973
Col$^-$	0.275	0.639	0.990	0.979	0.975	0.974
Col$^-$	0.280	0.643	0.988	0.981	0.974	0.974
Col$^-$/K	0.290	0.655	0.992	0.985	0.979	0.978
Col$^-$	0.305	0.665	0.992	0.986	0.981	0.979
K	0.350	0.696	0.993	0.995	0.990	0.992
K	0.400	0.722	0.995	0.996	0.996	0.994
K	0.600	0.793	0.997	0.998	0.996	0.997

Table 6. Reduced pressure, packing fraction, uniaxial and biaxial order parameters of HBPs with L*=9 and W*=4.5. Absolute errors are lower than 5·10⁻³

Phase	P^*	η	$S_{2.L}$	$S_{2.T}$	$S_{2.W}$	B_2
I	0.030	0.201	0.020	0.020	0.010	0.020
I	0.050	0.251	0.040	0.042	0.033	0.013
I	0.075	0.300	0.030	0.050	0.050	0.050
I	0.090	0.328	0.050	0.050	0.050	0.020
N⁻	0.100	0.362	0.240	0.850	0.230	0.010
N⁻	0.110	0.385	0.251	0.910	0.241	0.025
N⁻	0.120	0.406	0.254	0.941	0.254	0.018
N⁻	0.125	0.416	0.261	0.948	0.261	0.017
Sm⁺	0.130	0.455	0.863	0.290	0.217	0.030
Sm⁺	0.140	0.477	0.872	0.329	0.254	0.076
Sm⁺	0.150	0.498	0.903	0.290	0.250	0.065
Sm⁺	0.160	0.518	0.954	0.363	0.350	0.100
Sm⁺	0.170	0.534	0.894	0.452	0.363	0.125
Sm_B	0.180	0.551	0.819	0.727	0.561	0.561
Sm_B	0.190	0.573	0.829	0.910	0.753	0.753
Col⁻	0.200	0.591	0.977	0.984	0.969	0.975
Col⁻	0.210	0.602	0.985	0.975	0.985	0.977
Col⁻	0.220	0.615	0.982	0.987	0.975	0.977
Col⁻	0.230	0.624	0.985	0.987	0.979	0.982
Col⁻	0.240	0.634	0.988	0.989	0.982	0.984
Col⁻	0.250	0.642	0.989	0.988	0.983	0.983
Col⁻	0.280	0.669	0.991	0.991	0.987	0.988
K	0.320	0.700	0.993	0.996	0.991	0.991
K	0.350	0.717	0.994	0.996	0.992	0.994
K	0.400	0.743	0.995	0.994	0.995	0.994

Table 7. Reduced pressure, packing fraction, uniaxial and biaxial order parameters of HBPs with L*=9 and W*=5. Absolute errors are lower than 5·10⁻³

Phase	P^*	η	$S_{2.L}$	$S_{2.T}$	$S_{2.W}$	B_2
I	0.060	0.285	0.020	0.020	0.020	0.020
I	0.070	0.307	0.050	0.060	0.030	0.005
I	0.075	0.318	0.050	0.100	0.040	0.010
N-	0.080	0.343	0.220	0.810	0.210	0.002
N-	0.120	0.432	0.267	0.955	0.257	0.023
Sm⁻	0.130	0.456	0.272	0.974	0.270	0.028
Sm⁻	0.140	0.484	0.267	0.977	0.260	0.019
Sm⁻	0.150	0.520	0.329	0.925	0.266	0.094
Sm⁻	0.160	0.543	0.379	0.927	0.302	0.142
Col⁻	0.170	0.570	0.905	0.952	0.867	0.862
Col⁻	0.180	0.590	0.972	0.985	0.966	0.963
Col⁻	0.190	0.602	0.979	0.982	0.966	0.969
Col⁻	0.200	0.618	0.984	0.987	0.978	0.978
Col⁻	0.220	0.639	0.987	0.990	0.983	0.983
Col⁻	0.225	0.643	0.988	0.990	0.984	0.984
Col⁻	0.255	0.671	0.989	0.995	0.987	0.985
K	0.300	0.709	0.993	0.996	0.991	0.994
K	0.400	0.761	0.996	0.998	0.995	0.997

Table 8. Reduced pressure, packing fraction, uniaxial and biaxial order parameters of HBPs with L*=9 and W*=5.5. Absolute errors are lower than 5·10^{-3}

Phase	P*	η	S$_{2.L}$	S$_{2.T}$	S$_{2.W}$	B$_{2}$
I	0.030	0.217	0.001	0.001	0.001	0.001
I	0.050	0.275	0.050	0.078	0.048	0.030
I	0.060	0.300	0.020	0.020	0.020	0.020
I	0.065	0.313	0.050	0.100	0.040	0.010
N^{-}	0.070	0.336	0.210	0.800	0.210	0.010
N^{-}	0.080	0.365	0.240	0.900	0.240	0.001
N^{-}	0.100	0.414	0.270	0.960	0.270	0.020
N^{-}	0.110	0.435	0.265	0.962	0.260	0.030
Sm^{-}	0.120	0.460	0.265	0.977	0.265	0.021
Sm^{-}	0.130	0.493	0.268	0.990	0.265	0.020
Sm^{-}	0.140	0.524	0.270	0.988	0.262	0.023
Sm^{-}	0.150	0.548	0.267	0.992	0.267	0.020
Col^{-}	0.155	0.573	0.958	0.982	0.949	0.941
Col^{-}	0.160	0.584	0.974	0.983	0.967	0.965
Col^{-}	0.180	0.613	0.981	0.987	0.976	0.976
Col^{-}	0.200	0.640	0.987	0.990	0.984	0.984
Col^{-}	0.230	0.673	0.990	0.994	0.988	0.987
Col^{-}	0.250	0.690	0.992	0.996	0.990	0.989
K	0.280	0.714	0.993	0.997	0.992	0.995
K	0.300	0.725	0.994	0.997	0.993	0.995

Table 9. Reduced pressure, packing fraction, uniaxial and biaxial order parameters of HBPs with L*=9 and W*=7. Absolute errors are lower than 5·10^{-3}

Phase	P*	η	S$_{2.L}$	S$_{2.T}$	S$_{2.W}$	B$_2$
I	0.020	0.199	0.001	0.000	0.001	0.001
I	0.030	0.242	0.025	0.040	0.025	0.010
I	0.035	0.263	0.040	0.070	0.038	0.010
I	0.038	0.274	0.040	0.060	0.040	0.010
I	0.041	0.285	0.040	0.100	0.040	0.002
N$^-$	0.050	0.330	0.210	0.880	0.210	0.000
N$^-$	0.080	0.425	0.262	0.965	0.257	0.010
N$^-$	0.090	0.452	0.260	0.980	0.270	0.010
Sm$^-$	0.100	0.496	0.269	0.983	0.263	0.027
Sm$^-$	0.110	0.524	0.258	0.988	0.258	0.019
Sm$^-$	0.120	0.551	0.276	0.992	0.276	0.040
Col	0.135	0.598	0.951	0.989	0.949	0.936
Col	0.150	0.632	0.984	0.993	0.982	0.980
Col	0.170	0.657	0.987	0.993	0.985	0.983
Col	0.180	0.670	0.989	0.995	0.989	0.986
K	0.200	0.695	0.991	0.996	0.991	0.989
K	0.210	0.705	0.992	0.997	0.997	0.989

Table 10. Reduced pressure, packing fraction, uniaxial and biaxial order parameters of HBPs with L*=9 and W*=8. Absolute errors are lower than 5·10^{-3}

Phase	P*	η	S$_{2.L}$	S$_{2.T}$	S$_{2.W}$	B$_2$
I	0.020	0.212	0.050	0.050	0.050	0.000
I	0.025	0.237	0.030	0.020	0.030	0.020
I	0.030	0.262	0.035	0.050	0.030	0.010
N-	0.035	0.295	0.210	0.750	0.210	0.020
N-	0.050	0.358	0.280	0.920	0.280	0.050
N-	0.060	0.392	0.250	0.950	0.250	0.010
N-	0.075	0.442	0.272	0.975	0.272	0.040
Col	0.080	0.486	0.255	0.980	0.255	0.020
Col	0.085	0.507	0.290	0.980	0.290	0.050
Col	0.090	0.522	0.269	0.985	0.269	0.028
Col	0.100	0.553	0.560	0.987	0.560	0.418
Col	0.110	0.574	0.560	0.990	0.560	0.420
Col	0.120	0.597	0.560	0.990	0.560	0.420
Col	0.125	0.607	0.560	0.990	0.560	0.430
Col	0.130	0.616	0.560	0.990	0.560	0.430
Col	0.150	0.662	0.988	0.996	0.987	0.985
K	0.170	0.689	0.991	0.998	0.990	0.987
K	0.190	0.710	0.992	0.998	0.992	0.990
K	0.210	0.731	0.993	0.998	0.993	0.991

Table 11. Reduced pressure, packing fraction, uniaxial and biaxial order parameters of HBPs with L*=9 and W*=9. Absolute errors are lower than $5 \cdot 10^{-3}$

Phase	P^*	η	$S_{2.L}$	$S_{2.T}$	$S_{2.W}$	B_2
I	0.010	0.170	0.000	0.000	0.000	0.000
I	0.015	0.193	0.025	0.040	0.025	0.020
I	0.020	0.224	0.050	0.040	0.030	0.000
I	0.025	0.254	0.050	0.100	0.050	0.010
N^-	0.027	0.272	0.198	0.710	0.190	0.001
N^-	0.028	0.280	0.200	0.750	0.200	0.001
N^-	0.030	0.292	0.210	0.820	0.210	0.000
N^-	0.040	0.340	0.240	0.930	0.240	0.020
N^-	0.050	0.382	0.250	0.950	0.250	0.010
N^-	0.060	0.420	0.250	0.975	0.250	0.001
N^-	0.065	0.445	0.254	0.973	0.250	0.001
N^-	0.070	0.466	0.254	0.982	0.254	0.001
N^-	0.072	0.473	0.255	0.981	0.255	0.010
N^-	0.073	0.478	0.250	0.983	0.248	0.005
N^-	0.074	0.481	0.256	0.982	0.256	0.012
Col	0.075	0.515	0.650	0.978	0.650	0.540
Col	0.085	0.550	0.648	0.970	0.648	0.540
Col	0.110	0.600	0.700	0.990	0.700	0.600
Col	0.115	0.611	0.692	0.995	0.692	0.588
Col	0.120	0.633	0.983	0.993	0.984	0.980
Col	0.125	0.645	0.987	0.994	0.986	0.983
Col	0.130	0.653	0.987	0.994	0.987	0.984
K	0.150	0.687	0.990	0.998	0.990	0.987
K	0.170	0.712	0.992	0.998	0.992	0.990

Table 12. Reduced pressure, packing fraction, uniaxial and biaxial order parameters of HBPs with L*=12 and W*=1. Absolute errors are lower than $5 \cdot 10^{-3}$

Phase	P^*	η	$S_{2.L}$	$S_{2.T}$	$S_{2.W}$	B_2
I	0.100	0.179	0.036	0.022	0.027	-
I	0.130	0.203	0.048	0.023	0.024	-
N^+	0.140	0.235	0.758	0.202	0.202	0.014
N^+	0.150	0.246	0.794	0.212	0.212	0.014
N^+	0.200	0.290	0.918	0.244	0.244	0.015
N^+	0.300	0.366	0.976	0.261	0.261	0.018
N^+	0.350	0.402	0.986	0.262	0.262	0.017
Sm^+	0.370	0.413	0.988	0.263	0.263	0.018
Sm^+	0.400	0.434	0.990	0.265	0.265	0.014
Sm^+	0.500	0.489	0.994	0.259	0.259	0.013
Sm^+	0.530	0.533	0.997	0.260	0.260	0.016
Col^+	0.550	0.555	0.998	0.266	0.266	0.024
Col^+	0.600	0.578	0.998	0.275	0.275	0.032
Col^+	0.750	0.630	0.999	0.968	0.968	0.957
Col^+	1.000	0.692	0.999	0.989	0.898	0.986
Col^+	1.400	0.759	0.999	0.995	0.995	0.993
K	1.500	0.772	0.999	0.994	0.994	0.994
K	2.000	0.826	0.999	0.997	0.997	0.996

Table 13. Reduced pressure, packing fraction, uniaxial and biaxial order parameters of HBPs with L*=12 and W*=2.5. Absolute errors are lower than 5·10^{-3}

Phase	P^*	η	$S_{2.L}$	$S_{2.T}$	$S_{2.w}$	B_2
I	0.070	0.243	0.022	0.022	0.014	0.001
I	0.080	0.260	0.085	0.019	0.007	0.002
I	0.090	0.277	0.154	0.079	0.039	0.011
N$^+$	0.095	0.294	0.586	0.139	0.135	0.001
N$^+$	0.100	0.308	0.755	0.231	0.183	0.001
N$^+$	0.120	0.349	0.907	0.251	0.235	0.010
N$^+$	0.130	0.370	0.932	0.250	0.241	0.009
Sm$^+$	0.140	0.400	0.966	0.256	0.251	0.011
Sm$^+$	0.150	0.416	0.971	0.256	0.255	0.012
Sm$^+$	0.200	0.486	0.987	0.267	0.264	0.010
Sm$^+$	0.230	0.523	0.990	0.257	0.256	0.005
Sm$^+$	0.250	0.548	0.991	0.257	0.257	0.019
Col$^+$	0.255	0.588	0.995	0.974	0.972	0.978
Col$^+$	0.270	0.605	0.996	0.985	0.983	0.980
Col$^+$	0.300	0.629	0.997	0.989	0.988	0.985
Col$^+$	0.400	0.693	0.998	0.994	0.991	0.988
Col$^+$	0.500	0.735	0.999	0.996	0.995	0.991
K	0.600	0.768	0.999	0.997	0.996	0.993

Table 14. Reduced pressure, packing fraction, uniaxial and biaxial order parameters of HBPs with L*=12 and W*=3. Absolute errors are lower than $5 \cdot 10^{-3}$

Phase	P*	η	$S_{2.L}$	$S_{2.T}$	$S_{2.W}$	B_2
I	0.070	0.266	0.0409	0.037	0.0187	0.001
I	0.080	0.285	0.098	0.044	0.0091	0.020
I	0.082	0.289	0.022	0.012	0.034	0.010
N^+	0.085	0.308	0.680	0.237	0.161	0.004
N^+	0.090	0.314	0.699	0.247	0.172	0.003
N^+	0.095	0.327	0.782	0.240	0.195	0.007
N^+	0.100	0.348	0.861	0.248	0.218	0.009
N^+	0.105	0.360	0.911	0.250	0.231	0.010
Sm^+	0.110	0.389	0.954	0.259	0.250	0.012
Sm^+	0.150	0.466	0.980	0.264	0.261	0.015
Sm^+	0.200	0.537	0.989	0.276	0.274	0.019
Sm^+	0.220	0.557	0.975	0.283	0.274	0.045
Col^+	0.230	0.607	0.995	0.989	0.984	0.985
Col^+	0.250	0.629	0.996	0.991	0.986	0.988
Col^+	0.300	0.666	0.997	0.994	0.992	0.991
Col^+	0.400	0.725	0.998	0.997	0.995	0.997
Col^+	0.430	0.741	0.998	0.997	0.996	0.991
Col^+	0.450	0.746	0.998	0.997	0.996	0.992
K	0.500	0.775	0.999	0.998	0.997	0.993

Table 15. Reduced pressure, packing fraction, uniaxial and biaxial order parameters of HBPs with L*=12 and W*=3.46. Absolute errors are lower than $5\cdot10^{-3}$

Phase	P*	η	$S_{2.L}$	$S_{2.T}$	$S_{2.W}$	B_2
I	0.070	0.285	0.021	0.017	0.03	0.001
I	0.080	0.306	0.084	0.102	0.021	0.006
I	0.082	0.313	0.214	0.276	0.041	0.010
N^+	0.083	0.319	0.508	0.283	0.123	0.068
N^+	0.084	0.327	0.669	0.298	0.182	0.048
N^+	0.085	0.330	0.677	0.268	0.169	0.060
N^+	0.090	0.354	0.864	0.284	0.242	0.051
Sm^+	0.095	0.381	0.922	0.263	0.247	0.027
Sm^+	0.100	0.394	0.951	0.264	0.255	0.011
Sm^+	0.120	0.442	0.969	0.269	0.263	0.016
Sm^+	0.150	0.499	0.983	0.266	0.263	0.011
Sm^+	0.170	0.534	0.987	0.270	0.268	0.023
Col^+	0.190	0.594	0.993	0.984	0.979	0977
Col^+	0.200	0.609	0.994	0.991	0.987	0.987
Col^+	0.300	0.697	0.997	0.996	0.994	0.994
Col^+	0.400	0.752	0.998	0.998	0.997	0.997
Col^+	0.450	0.772	0.999	0.998	0.997	0.996
K	0.500	0.788	0.999	0.998	0.997	0.996

Table 16. Reduced pressure, packing fraction, uniaxial and biaxial order parameters of HBPs with L*=12 and W*=3.6. Absolute errors are lower than $5 \cdot 10^{-3}$

Phase	P*	η	$S_{2.L}$	$S_{2.T}$	$S_{2.W}$	B_2
I	0.060	0.270	0.020	0.01	0.018	0.007
I	0.070	0.291	0.083	0.104	0.028	0.012
I	0.075	0.304	0.20	0.131	0.025	0.013
N^+	0.080	0.321	0.212	0.571	0.113	0.01
N^+	0.085	0.336	0.244	0.801	0.187	0.013
N^+	0.088	0.344	0.266	0.774	0.196	0.012
Sm^+	0.089	0.363	0.850	0.257	0.224	0.015
Sm^+	0.090	0.374	0.894	0.253	0.237	0.018
Sm^+	0.100	0.408	0.960	0.261	0.254	0.011
Sm^+	0.150	0.508	0.985	0.276	0.273	0.017
Sm^+	0.160	0.533	0.987	0.281	0.278	0.033
Col^-	0.170	0.560	0.988	0.911	0.909	0.878
Col^-	0.200	0.603	0.991	0.980	0.978	0.973
Col^+	0.210	0.627	0.995	0.992	0.989	0.989
Col^+	0.250	0.670	0.997	0.995	0.993	0.993
Col^+	0.300	0.703	0.997	0.997	0.995	0.995
Col^+	0.400	0.761	0.998	0.998	0.997	0.997
Col^+	0.450	0.777	0.999	0.997	0.997	0.997
K	0.500	0.795	0.999	0.998	0.998	0.997

Table 17. Reduced pressure, packing fraction, uniaxial and biaxial order parameters of HBPs with L*=12 and W*=3.8. Absolute errors are lower than 5·10^{-3}

Phase	P*	η	$S_{2.L}$	$S_{2.T}$	$S_{2.W}$	B_2
I	0.040	0.227	0.030	0.033	0.017	0.010
I	0.060	0.279	0.093	0.092	0.0335	0.011
I	0.066	0.293	0.129	0.027	0.32	0.011
N$^-$	0.067	0.297	0.200	0.499	0.103	0.0165
N$^-$	0.068	0.304	0.214	0.583	0.137	0.019
N$^-$	0.070	0.310	0.249	0.692	0.174	0.037
N$^-$	0.080	0.337	0.272	0.790	0.205	0.050
N$^-$	0.085	0.355	0.264	0.861	0.234	0.013
Sm$^+$	0.086	0.372	0.883	0.256	0.240	0.014
Sm$^+$	0.087	0.375	0.881	0.263	0.234	0.033
Sm$^+$	0.088	0.379	0.902	0.266	0.246	0.028
Sm$^+$	0.090	0.396	0.949	0.268	0.257	0.019
Sm$^+$	0.100	0.423	0.964	0.273	0.266	0.023
Sm$^+$	0.150	0.531	0.986	0.264	0.261	0.012
Col$^-$	0.160	0.561	0.950	0.939	0.973	0.934
Col$^-$	0.180	0.598	0.991	0.978	0.974	0.971
Col$^-$	0.190	0.606	0.990	0.979	0977	0.973
Col$^-$	0.200	0.625	0.993	0.988	0.984	0.982
Col$^+$	0.230	0.662	0.996	0.995	0.992	0.994
Col$^+$	0.300	0.717	0.997	0.997	0.995	0.996
Col$^+$	0.400	0.767	0.998	0.998	0.997	0.997
Col$^+$	0.450	0.789	0.999	0.999	0.999	0.998
K	0.470	0.793	0.999	0.999	0.998	0.998
K	0.500	0.803	0.999	0.999	0.999	0.998

Table 18. Reduced pressure, packing fraction, uniaxial and biaxial order parameters of HBPs with L*=12 and W*=4. Absolute errors are lower than $5 \cdot 10^{-3}$

Phase	P*	η	$S_{2.L}$	$S_{2.T}$	$S_{2.W}$	B_2
I	0.050	0.261	0.028	0.037	0.020	0.001
I	0.060	0.287	0.092	0.123	0.030	0.002
N⁻	0.061	0.293	0.204	0.564	0.125	0.021
N⁻	0.065	0.309	0.174	0.506	0.031	0.031
N⁻	0.070	0.319	0.245	0.745	0.181	0.027
N⁻	0.080	0.348	0.254	0.853	0.220	0.022
N⁻	0.084	0.363	0.263	0.898	0.239	0.019
Sm⁺	0.085	0.391	0.927	0.268	0.251	0.025
Sm⁺	0.090	0.412	0.959	0.276	0.266	0.041
Sm⁺	0.100	0.436	0.9655	0.268	0.018	0.020
Sm⁺	0.120	0.481	0.979	0.271	0.017	0.016
Sm⁺	0.130	0.503	0.981	0.282	0.278	0.025
Sm⁺	0.140	0.527	0.984	0.283	0.280	0.034
Col⁻	0.150	0.560	0.987	0.949	0.940	0.936
Col⁻	0.175	0.600	0.991	0.982	0.977	0.976
K	0.185	0.617	0.992	0.990	0.985	0.986
K	0.200	0.641	0.993	0.993	0.988	0.990

Table 19. Reduced pressure, packing fraction, uniaxial and biaxial order parameters of HBPs with L*=12 and W*=4.5. Absolute errors are lower than 5·10^{-3}

Phase	P*	η	$S_{2.L}$	$S_{2.T}$	$S_{2.w}$	B_2
I	0.020	0.179	0.025	0.028	0.020	0.001
I	0.030	0.217	0.032	0.047	0.022	0.010
I	0.045	0.266	0.044	0.057	0.030	0.005
N$^-$	0.050	0.287	0.204	0.656	0.160	0.012
N$^-$	0.055	0.309	0.243	0.81	0.212	0.015
N$^-$	0.060	0.321	0.234	0.823	0.208	0.019
N$^-$	0.070	0.351	0.255	0.900	0.237	0.018
N$^-$	0.074	0.365	0.256	0.935	0.244	0.012
Sm$^+$	0.075	0.388	0.917	0.285	0.260	0.037
Sm$^+$	0.080	0.408	0.938	0.289	0.268	0.041
Sm$^+$	0.100	0.462	0.967	0.275	0.266	0.012
Sm$^+$	0.110	0.493	0.976	0.277	0.272	0.021
Col$^-$	0.120	0.530	0.981	0.964	0.952	0.934
Col$^-$	0.140	0.572	0.986	0.973	0.965	0.977
Col$^-$	0.150	0.59	0.988	0.974	0.973	0.973
Col$^-$	0.160	0.609	0.991	0.986	0.981	0.986
K	0.165	0.617	0.992	0.990	0.984	0.985
K	0.200	0.665	0.994	0.996	0.991	0.993

Table 20. Reduced pressure, packing fraction, uniaxial and biaxial order parameters of HBPs with L*=12 and W*=5. Absolute errors are lower than 5·10^{-3}

Phase	P*	η	$S_{2.L}$	$S_{2.T}$	$S_{2.W}$	B_2
I	0.030	0.229	0.055	0.064	0.024	0.001
I	0.035	0.248	0.043	0.037	0.045	0.010
N$^-$	0.040	0.269	0.185	0.559	0.140	0.020
N$^-$	0.050	0.314	0.242	0.860	0.226	0.019
N$^-$	0.060	0.347	0.257	0.921	0.249	0.024
N$^-$	0.070	0.376	0.260	0.936	0.248	0.018
N$^-$	0.080	0.405	0.265	0.929	0.239	0.021
Sm$^+$	0.085	0.440	0.767	0.591	0.430	0.027
Sm$^+$	0.090	0.464	0.891	0.567	0.487	0.034
Sm$^+$	0.100	0.496	0.905	0.585	0.511	0.061
Col$^-$	0.110	0.532	0.956	0.944	0.924	0.936
Col$^-$	0.120	0.553	0.962	0.963	0.950	0.953
Col$^-$	0.130	0.582	0.986	0.984	0.975	0.979
Col$^-$	0.140	0.602	0.989	0.985	0.979	0.983
K	0.150	0.626	0.992	0.994	0.988	0.988
K	0.200	0.693	0.995	0.997	0.993	0.993

Table 21. Reduced pressure, packing fraction, uniaxial and biaxial order parameters of HBPs with L*=12 and W*=5.5. Absolute errors are lower than $5 \cdot 10^{-3}$

Phase	P*	η	$S_{2.L}$	$S_{2.T}$	$S_{2.W}$	B_2
I	0.030	0.242	0.048	0.098	0.034	0.001
I	0.035	0.271	0.203	0.682	0.175	0.002
N⁻	0.040	0.297	0.235	0.832	0.220	0.019
N⁻	0.050	0.333	0.251	0.910	0.243	0.018
N⁻	0.070	0.397	0.262	0.953	0.256	0.014
N⁻	0.075	0.412	0.260	0.965	0.256	0.019
N⁻	0.080	0.434	0.261	0.969	0.254	0.015
Sm⁺	0.083	0.466	0.543	0.466	0.149	0.04
Sm⁺	0.085	0.473	0.520	0.480	0.147	0.033
Sm⁺	0.088	0.474	0.507	0.473	0.139	0.067
Col⁻	0.090	0.500	0.873	0.57	0.845	0.825
Col⁻	0.100	0.538	0.969	0.980	0.956	0.956
Col⁻	0.130	0.606	0.987	0.989	0.980	0.981
Col⁻	0.14	0.624	0.990	0.990	0.984	0.986
K	0.150	0.642	0.991	0.995	0.988	0.987

Table 22. Reduced pressure, packing fraction, uniaxial and biaxial order parameters of HBPs with L*=12 and W*=6. Absolute errors are lower than $5 \cdot 10^{-3}$

Phase	P*	η	$S_{2.L}$	$S_{2.T}$	$S_{2.W}$	B_2
I	0.020	0.204	0.036	0.047	0.024	0.001
I	0.025	0.230	0.039	0.066	0.032	0.002
I	0.028	0.244	0.09	0.215	0.055	0.011
N⁻	0.029	0.253	0.155	0.462	0.123	0.017
N⁻	0.030	0.264	0.220	0.774	0.20	0.013
N⁻	0.040	0.313	0.238	0.872	0.231	0.018
N⁻	0.060	0.387	0.262	0.971	0.260	0.022
N⁻	0.070	0.421	0.268	0.971	0.259	0.013
N⁻	0.075	0.439	0.263	0.981	0.261	0.025
N⁻	0.080	0.458	0.286	0.984	0.283	0.047
N⁻	0.083	0.472	0.242	0.854	0.249	0.038
Col⁻	0.085	0.509	0.927	0.975	0.949	0.902
Col⁻	0.090	0.532	0.962	0.981	0.949	0.947
Col⁻	0.100	0.561	0.979	0.986	0.970	0.968
Col⁻	0.110	0.589	0.984	0.988	0.977	0.978
K	0.120	0.609	0.988	0.992	0.983	0.983
K	0.150	0.667	0.991	0.997	0.989	0.989

Table 23. Reduced pressure, packing fraction, uniaxial and biaxial order parameters of HBPs with L*=12 and W*=7. Absolute errors are lower than $5 \cdot 10^{-3}$

Phase	P*	η	$S_{2.L}$	$S_{2.T}$	$S_{2.W}$	B_2
I	0.022	0.235	0.082	0.144	0.063	0.003
N⁻	0.023	0.245	0.192	0.642	0.172	0.017
N⁻	0.025	0.266	0.219	0.750	0.204	0.011
N⁻	0.030	0.295	0.237	0.847	0.228	0.022
N⁻	0.040	0.343	0.256	0.940	0.254	0.020
N⁻	0.060	0.421	0.266	0.981	0.265	0.024
N⁻	0.065	0.437	0.271	0.986	0.270	0.021
N⁻	0.068	0.450	0.273	0.987	0.273	0.030
Sm⁻	0.070	0.465	0.264	0.991	0.263	0.016
Sm⁻	0.075	0.485	0.262	0.993	0.262	0.011
Sm⁻	0.078	0.502	0.277	0.995	0.276	0.035
Sm⁻	0.079	0.508	0.281	0.996	0.281	0.034
Col⁻	0.080	0.533	0.891	0.988	0.886	0.855
Col⁻	0.090	0.572	0.969	0.988	0.965	0.960
Col⁻	0.095	0.589	0.978	0.989	0.974	0.971
K	0.100	0.608	0.985	0.995	0.982	0.979
K	0.200	0.753	0.996	0.999	0.995	0.994

Table 24. Reduced pressure, packing fraction, uniaxial and biaxial order parameters of HBPs with L*=12 and W*=8. Absolute errors are lower than 5·10^{-3}

| Phase	P*	η	$S_{2.L}$	$S_{2.T}$	$S_{2.W}$	B_2
I	0.010	0.168	0.033	0.045	0.029	0.004
I	0.015	0.205	0.0434	0.072	0.039	0.041
N$^-$	0.017	0.222	0.068	0.120	0.058	0.007
N$^-$	0.018	0.236	0.178	0.612	0.168	0.016
N$^-$	0.02	0.257	0.222	0.795	0.211	0.02
N$^-$	0.04	0.367	0.256	0.964	0.255	0.012
N$^-$	0.050	0.412	0.259	0.977	0.258	0.013
N$^-$	0.055	0.432	0.267	0.984	0.266	0.012
Sm$^-$	0.060	0.455	0.273	0.988	0.272	0.017
Sm$^-$	0.070	0.515	0.281	0.997	0.282	0.020
Sm$^-$	0.075	0.543	0.273	0.998	0.273	0.020
Sm$^-$	0.078	0.551	0.268	0.981	0.268	0.013
Col$^-$	0.079	0.569	0.947	0.989	0.945	0.931
Col$^-$	0.080	0.577	0.973	0.989	0.971	0.967
Col$^-$	0.085	0.586	0.969	0.985	0.975	0.968
Col$^-$	0.088	0.599	0.980	0.986	0.977	0.977
K	0.090	0.614	0.985	0.995	0.983	0.980
K	0.100	0.637	0.987	0.997	0.986	0.983

Table 25. Reduced pressure, packing fraction, uniaxial and biaxial order parameters of HBPs with L*=12 and W*=10. Absolute errors are lower than 5·10⁻³

Phase	P*	η	$S_{2.L}$	$S_{2.T}$	$S_{2.W}$	B_2
I	0.011	0.198	0.0772	0.202	0.067	0.001
N⁻	0.012	0.215	0.147	0.515	0.146	0.01
N⁻	0.020	0.392	0.245	0.908	0.244	0.017
N⁻	0.030	0.361	0.257	0.959	0.257	0.015
N⁻	0.040	0.416	0.262	0.979	0.261	0.018
Col⁻	0.043	0.439	0.265	0.985	0.265	0.021
Col⁻	0.045	0.458	0.268	0.986	0.268	0.026
Col⁻	0.050	0.496	0.273	0.991	0.273	0.032
Col⁻	0.080	0.631	0.984	0.995	0.983	0.979
Col⁻	0.090	0.656	0.989	0.996	0.988	0.986
K	0.095	0.672	0.989	0.998	0.989	0.987
K	0.100	0.685	0.991	0.998	0.990	0.987

Table 26. Reduced pressure, packing fraction, uniaxial and biaxial order parameters of HBPs with L*=12 and W*=12. Absolute errors are lower than $5 \cdot 10^{-3}$

Phase	P*	η	$S_{2.L}$	$S_{2.T}$	$S_{2.W}$	B_2
I	0.005	0.137	0.031	0.04	0.030	0.001
I	0.007	0.168	0.044	0.09	0.046	0.010
I	0.008	0.183	0.075	0.225	0.084	0.015
N⁻	0.009	0.206	0.193	0.703	0.190	0.011
N⁻	0.010	0.221	0.246	0.797	0.216	0.016
N⁻	0.015	0.280	0.245	0.915	0.245	0.015
N⁻	0.020	0.324	0.253	0.947	0.253	0.015
N⁻	0.030	0.399	0.265	0.981	0.265	0.020
Col⁻	0.033	0.426	0.262	0.984	0.262	0.018
Col⁻	0.040	0.500	0.258	0.989	0.258	0.013
Col⁻	0.060	0.604	0.977	0.993	0.979	0.988
Col⁻	0.070	0.642	0.986	0.995	0.987	0.992
K	0.075	0.661	0.989	0.997	0.989	0.994
K	0.080	0.675	0.990	0.998	0.989	0.995
K	0.090	0.701	0.992	0.999	0.991	0.996
K	0.100	0.721	0.993	0.999	0.997	0.997

Figure 1. Equation of state η vs P^* of HBPs of length $L^*=9$ at different values of the reduced width. Symbols indicate the simulation results, while dashed lines are theoretical predictions assuming biaxial particles. Solid lines are guides for the eye.
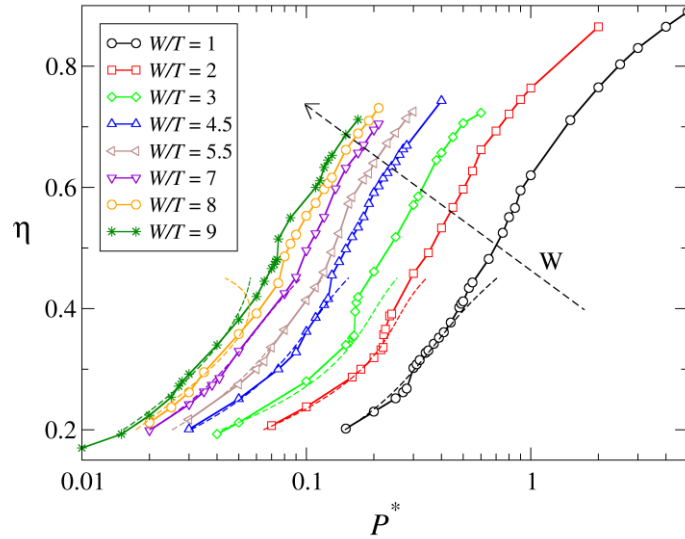
Figure 2. Equation of state η vs P^* of HBPs of length $L^*=12$ at different values of the reduced width. Symbols indicate the simulation results, while dashed lines are theoretical predictions assuming biaxial particles. Solid lines are guides for the eye.