AnnotatedBibliography

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1 Annotated Bibliography

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- Rintoul and Torquato, "Computer Simulations of dense hard-sphere systems" [4]

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- Donev, Burton, Stillinger, Torquato, "Tetratic order in the phase behavior of a hard-rectangle system" [5]

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- Kocay, Neilson, Szypowski, "Drawing Graphs on the Torus" – Algorithm for constructing a straight line drawing with no crossing on a rectangular representation of the torus [17]

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- Wagon, "Fourteen Proofs of a Result About Tiling a Rectangle" [22] – tiling rectangles with rectangles

- Dutour, Itoh, Poyarkov, "Cube Packings, second moment, and holes" [23]

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- Duparcmeur, Gervois, and Troadec (1995) "Dense Periodic Packings of Regular Polygons [25]

- Chung and Graham, "Packing Equal Squares into a Large Square" [26] – theory / analytics – UNORIENTED version – method seems applicable to torus?

References

[1] KW Wojciechowski and D. Frenkel. TETRATIC PHASE IN THE PLANAR HARD SQUARE SYSTEM? *Computational Methods in Science and Technology*, 10(2):235–255, 2004.

[2] Md Rintoul and S Torquato. Metastability and Crystallization in Hard-Sphere Systems. *Physical review letters*, 77(20):4198–4201, November 1996.

[3] Kathy S. Sturgeon and Frank H. Stillinger. Cavities in the hard-disk crystal: A Monte Carlo simulation study. *The Journal of Chemical Physics*, 96(6):4651, 1992.

[4] M. D. Rintoul and S. Torquato. Computer simulations of dense hard-sphere systems. *The Journal of Chemical Physics*, 105(20):9258, 1996.

[5] Aleksandar Donev, Joshua Burton, F.H. Stillinger, and Salvatore Torquato. Tetratic order in the phase behavior of a hard-rectangle system. *Physical Review B*, 73(5):054109, 2006.

[6] Jiwen Liu and Erik Luijten. Generalized geometric cluster algorithm for fluid simulation. *Physical Review E*, 71(6):1–12, June 2005.

[7] Daan Frenkel and Berend Smit. *Understanding molecular simulation: from algorithms to applications*. Academic Press, Inc. Orlando, FL, USA, September 1996.

[8] Shell. Monte Carlo simulations in other ensembles. 2009.

[9] Gerardo Odriozola. Replica exchange Monte Carlo applied to hard spheres. *The Journal of chemical physics*, 131(14):144107, 2009.

[10] J Machta. Strengths and Weaknesses of Parallel Tempering. *Bulletin of the American Physical Society*, 55:1–18, 2010.

[11] J Machta and R.S. Ellis. Monte Carlo Methods for Rough Free Energy Landscapes: Population Annealing and Parallel Tempering. *Arxiv preprint arXiv:1104.1138*, 2011.

[12] P. Shiu. Counting sums of two squares: the Meissel-Lehmer method. *Mathematics of Computation*, 47(175):351–351, September 1986.

[13] A.V. Reztsov and I.H. Sloan. On 2D packings of cubes in the torus. *Proceedings of the American Mathematical Society*, 125(1):17–26, 1997.

[14] Philippe Decaudin and F. Neyret. Packing square tiles into one texture. *Eurographics (short papers)*, pages 49–52, 2004.

[15] Mathieu Dutour Sikiric, Yoshiaki Itoh, and Alexei Poyarkov. I . Torus cube tilings and packings.

[16] William Dickinson, Daniel Guillot, Anna Keaton, and Sandi Xhumari. Optimal packings of up to five equal circles on a square flat torus. *Beitr\\"age zur Algebra und Geometrie/Contributions to Algebra and Geometry*, pages 1–19, May 2011.

[17] William Kocay, Daniel Neilson, and Ryan Szypowski. Drawing graphs on the torus. *Ars Combinatoria*, 59:259–278, 2001.

[18] Kun Zhao, Robijn Bruinsma, and T.G. Mason. Entropic crystal–crystal transitions of Brownian squares. *Proceedings of the National Academy of Sciences*, 108(7):2684, 2011.

[19] S. Boucheron, W. Fernandez de la Vega, W. Fernandez, and De La Vega. On A Square Packing Problem, 2000.

[20] Mathieu Dutour Sikirić and Yoshiaki Itoh. Combinatorial cube packings in the cube and the torus. *European Journal of Combinatorics*, 31(2):517–534, February 2010.

[21] Thierry Gensane and Philippe Ryckelynck. Improved Dense Packings of Congruent Squares in a Square. *Discrete & Computational Geometry*, 34(1):97–109, October 2004.

[22] S. Wagon. Fourteen proofs of a result about tiling a rectangle. In *The lighter side of mathematics: proceedings of the Eugène Strens Memorial Conference on Recreational Mathematics & Its History*, page 113. The Mathematical Association of America, 1994.

[23] M. Dutour Sikiric, Y. Itoh, and Alexei Poyarkov. Cube packings, second moment and holes. *European journal of combinatorics*, 28(3):715–725, 2007.

[24] Baumert. A Combinatorial Packing Problem, 1970.

[25] L. Duparcmeur, A. Gervois, and J. Troadec. Dense periodic packings of regular polygons. *Journal de Physique I*, 5(12):1539–1550, 1995.

[26] Fan Chung and Ron Graham. Packing equal squares into a large square. *Journal of Combinatorial Theory, Series A*, 116(6):1167–1175, August 2009.