Boulder Lecture - Mean Field Glassy Systems
References

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Lecture 1 : The original paper of Derrida is great, Phys. Rev. B **24**, 2613 (1981). For a more rigorous and modern presentation see the chapter on the REM in the book by Mézard and Montanari *Information, Physics and Computation.*

Lecture 2 and 3 : A nice and insightful discussion of the energy and free-energy landscape of the p-spin spherical model (and much more) can be found in the review by A. Cavagna *Spin Glass Theory for pedestrians* J. Stat. Mech. (2005) P05012. The derivation of the number of critical points I presented is based on (but a bit different from) the one developed in Auffinger, Ben Arous, Cerny Comm. in pure and applied math **66** 165 (2013). Another example of this kind of computation is A. Bray and D. Dean, PRL **98** 150201 (2007).

Lecture 4 : An intuitive phenomological derivation of the point-to-set going beyond mean-field theory, and more generally of the role of fluctuations on mean-field theory was presented in G. Biroli, J.-P. Bouchaud in Journal of chemical physics **121** 7347 (2004). The derivation of the point-to-set from field theory was originally obtained in S. Franz, JSTAT 2005(04) :P04001, 2005 using Kac-like models and in M. Dzero, J. Schmalian, and P. G. Wolynes Phys. Rev. B 72, 100201(R) (2005) by Landau theory.
A good general review on all that is S. Franz and G. Semerjian, arXiv :1009.5248.

General references : A review that contains a general presentation of mean-field theory, some of its extensions and comparison with experiments is G. Biroli and J.-P. Bouchaud, arxiv : 0912.2542. A general review on the glass transition from a theoretical perspective is L. Berthier, G. Biroli Reviews of Modern Physics **83** 587 (2011).
If you want to know more about the solution of hard spheres in infinite dimensions and the Gardner transition–two topics I didn't have time to cover–see P. Charbonneau, J. Kurchan, G. Parisi, P. Urbani, F. Zamponi, Annual Review of Condensed Matter Physics, Vol. 8, 265-288 (2017).