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This paper gives algorithms for the PIC (particle in cell) and FLIP (fluid implicit particle) methods in the context of sand simulation:

Zhu, Yongning, and Robert Bridson. "Animating sand as a fluid." *ACM Transactions on Graphics (TOG)* 24, no. 3 (2005): 965-972.
<http://dl.acm.org/citation.cfm?id=1073298>

Compare to this paper, which appeared at the same time and uses a rigid body approach:

Bell, Nathan, Yizhou Yu, and Peter J. Mucha. "Particle-based simulation of granular materials." In *Proceedings of the 2005 ACM SIGGRAPH/Eurographics symposium on Computer animation*, pp. 77-86. ACM, 2005.
<http://wnbell.com/blog/2005/07/01/particle-based-simulation-of-granular-materials/>

This paper, which coincidentally also appeared in 2005, describes deformation gradients fairly well:

Sumner, Robert W., Matthias Zwicker, Craig Gotsman, and Jovan Popović. "Mesh-based inverse kinematics." In *ACM Transactions on Graphics (TOG)*, vol. 24, no. 3, pp. 488-495. ACM, 2005.
<http://people.csail.mit.edu/sumner/research/meshik/Sumner2005MIK.pdf>

Some of the authors of the snow paper went on to work on phase change:

Stomakhin, Alexey, Craig Schroeder, Chenfanfu Jiang, Lawrence Chai, Joseph Teran, and Andrew Selle. "Augmented MPM for phase-change and varied materials." *ACM Transactions on Graphics (TOG)* 33, no. 4 (2014): 138.
<http://dl.acm.org/citation.cfm?id=2601176>

You may also find this dissertation interesting:

Wisessing, Pisut. "GETTING SANDY: CREATING COLLAPSING SAND EFFECTS FOR AN ODE TO LOVE." (2014).
http://tigerprints.clemson.edu/cgi/viewcontent.cgi?article=2898&context=all_theses