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Abstract for an Invited Paper
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Numerical calculation of granular entropy: counting the uncountable.

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In 1989, Sir Sam Edwards introduced the concept of ‘granular entropy’, defined as the logarithm of the number of distinct packings of N granular particles in a fixed volume V . The proposal was rather controversial but much of the debate was sterile because the granular entropy could not even be computed for systems as small as 20 particles - hardly a good approximation of the thermodynamic limit. In my talk I will describe how granular entropies of much larger systems can now be computed, using a novel algorithm. Interestingly, it turns out the definition of granular entropy will have to be modified to guarantee that granular entropy is extensive.