

Sloshing of Granular Materials

A Closer Look at the Fluidity of Sand



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Three Phases

Solid



<http://www.sailchannelislands.com/images/gallery/sandwaves.jpg>

Liquid



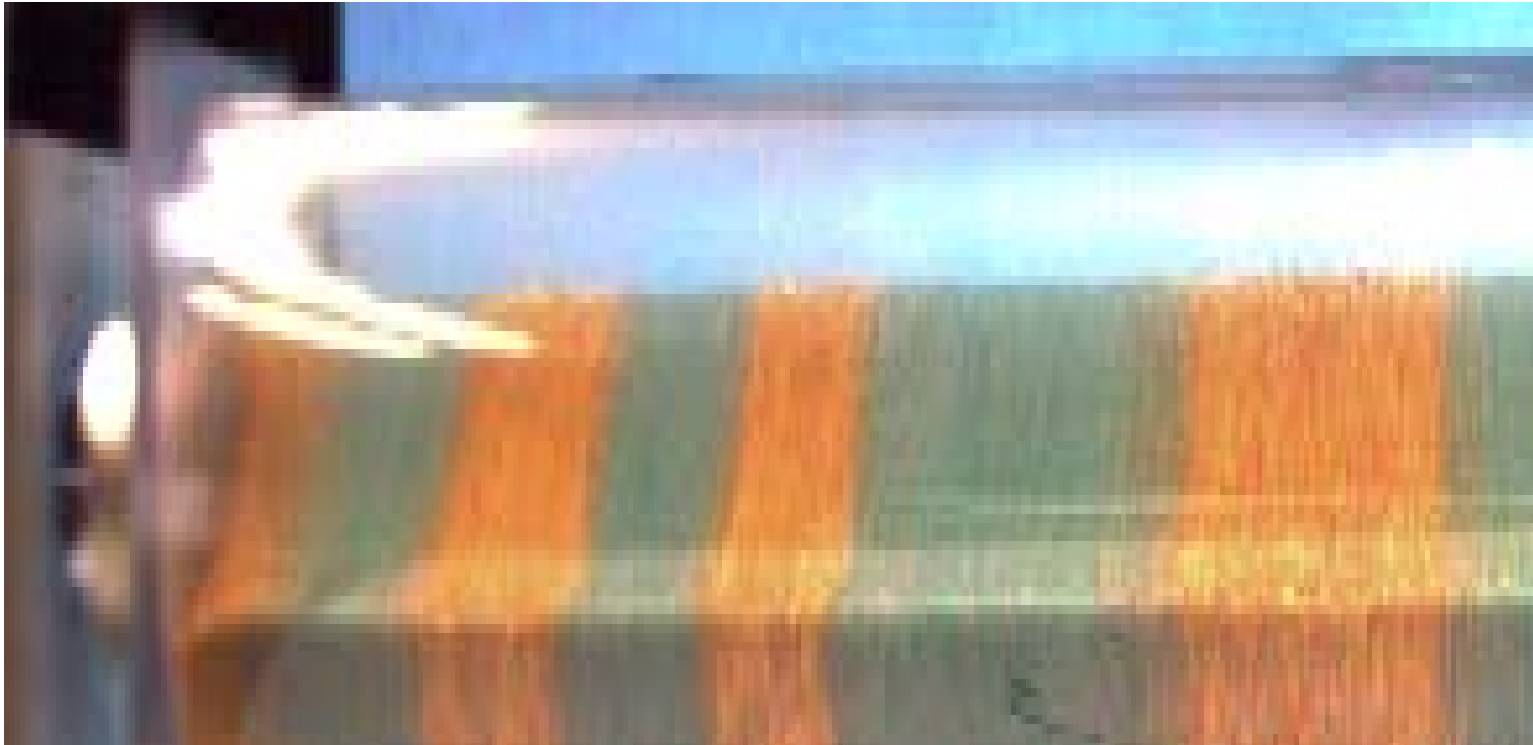
<http://www.nightswimming.com/pics/HourGlass.jpg>

Gas



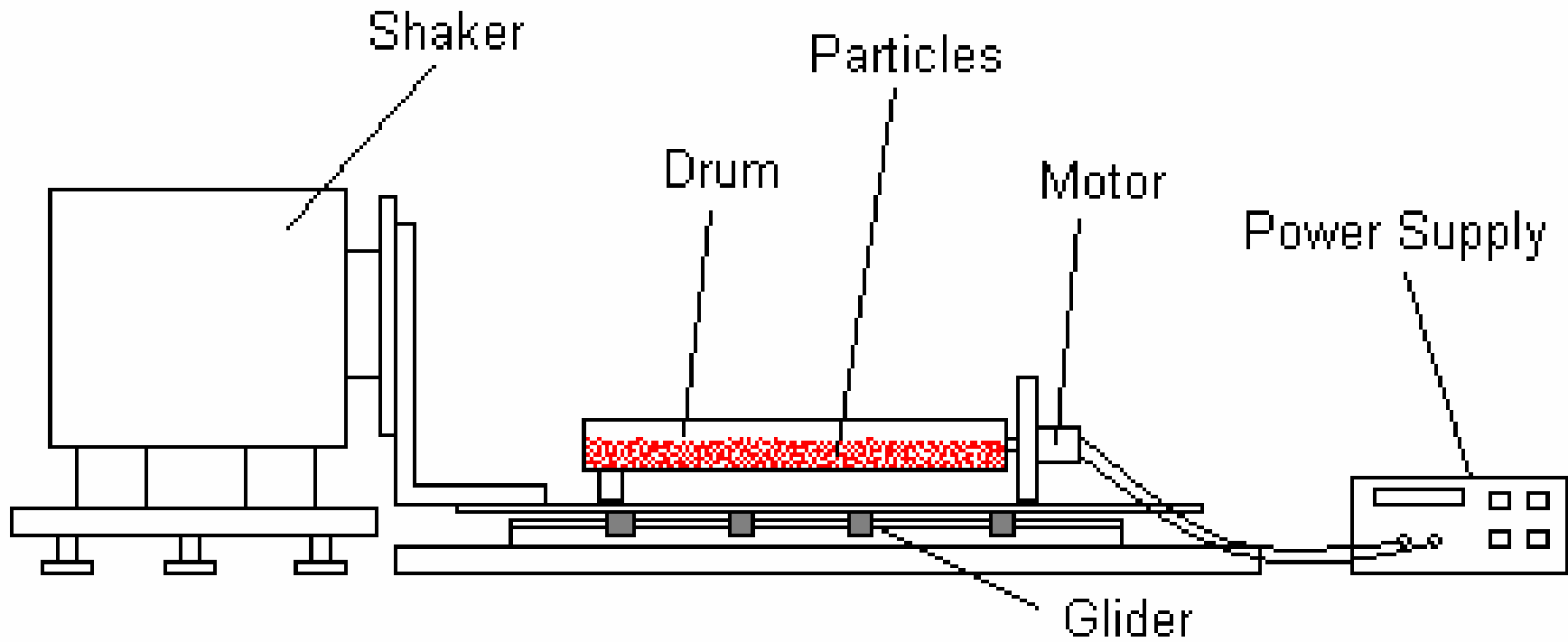
<http://library.thinkquest.org/03oct/01027/sandstormnrowofhouses.jpg>

Segregation

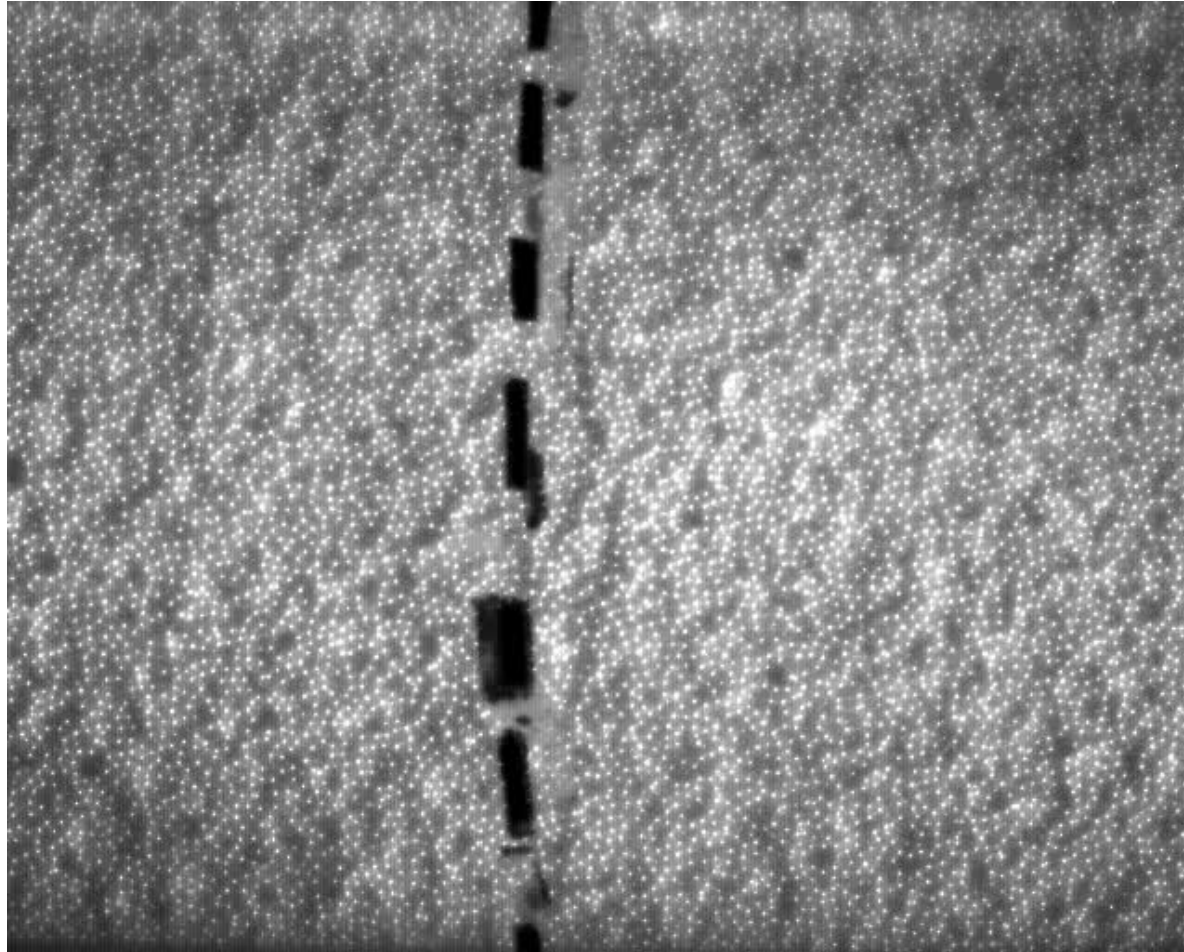


- A binary mixture segregating into bands

Setup

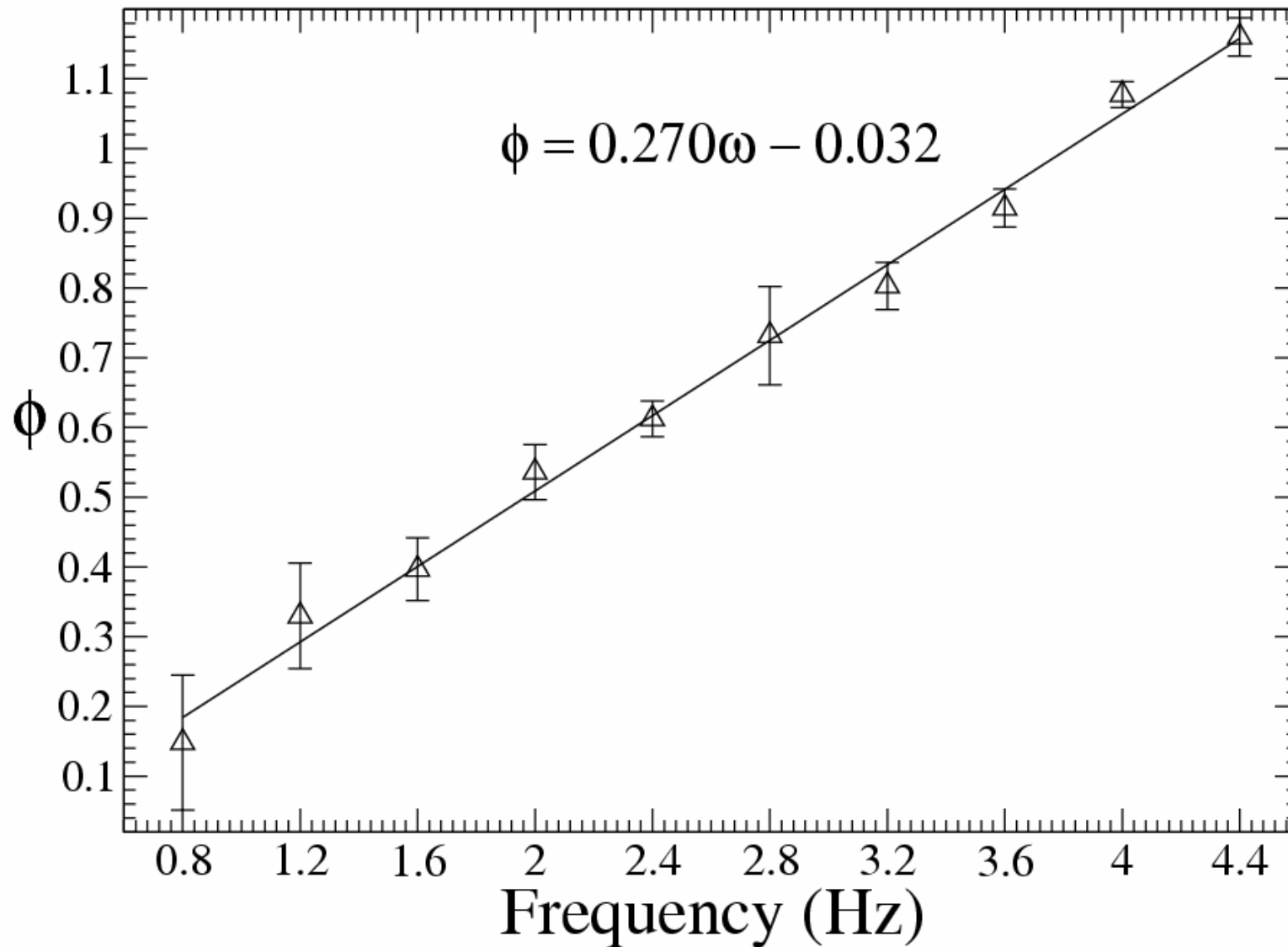


Sloshing Granular Matter

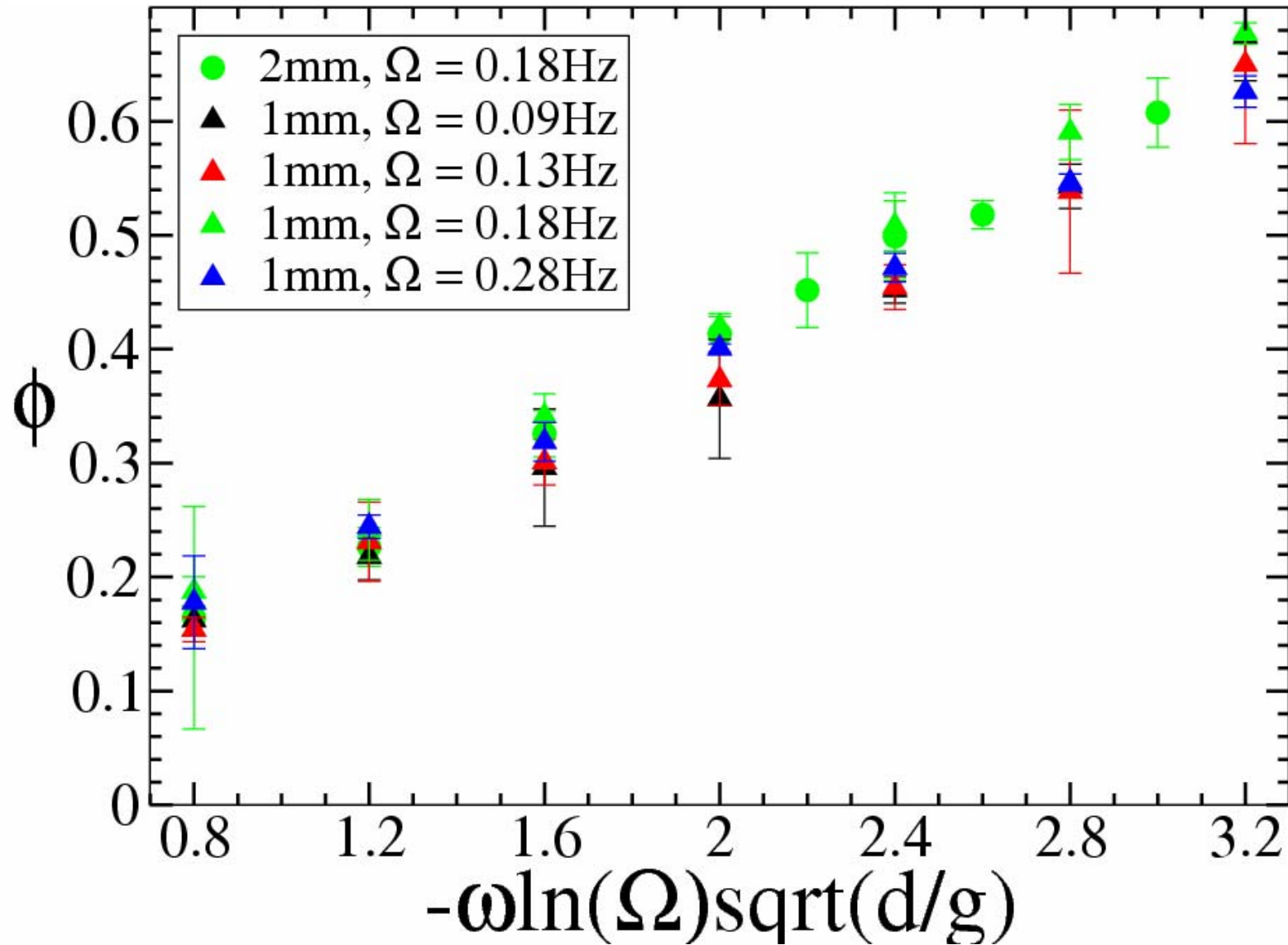


Linear Dependence of Frequency

Amplitude = 5mm, Bead Diameter = 2mm



Collapse of Data



Conclusion

- One measure of the fluidity may be η .
- As the fluidity increases η increases.
- We need to find a theory.
- We need to take more data.