Periodic Spherical Spiral Sampling in Gradient Direction Domain

Teams: Alchemists and Spiral
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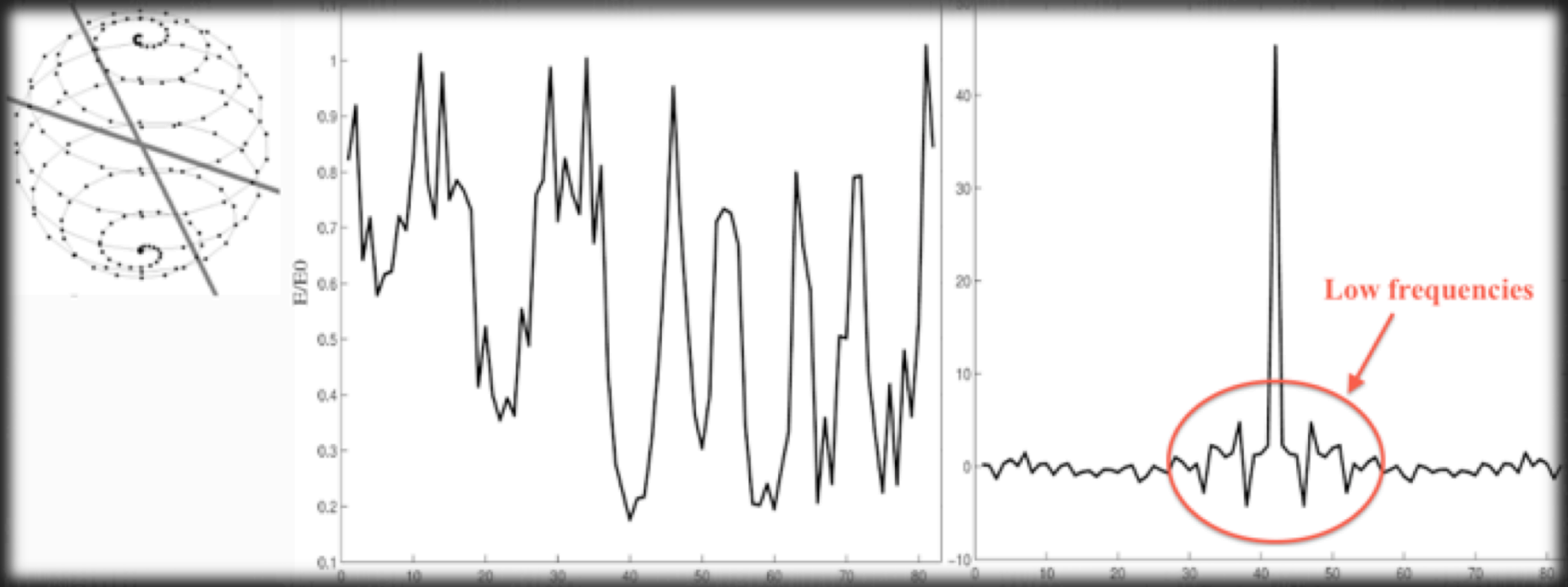
Outline

- Method
  - Periodic spiral sampling
  - Post-processing
- Alchemists Vs Spiral
- Preliminary results
- Conclusion

Method

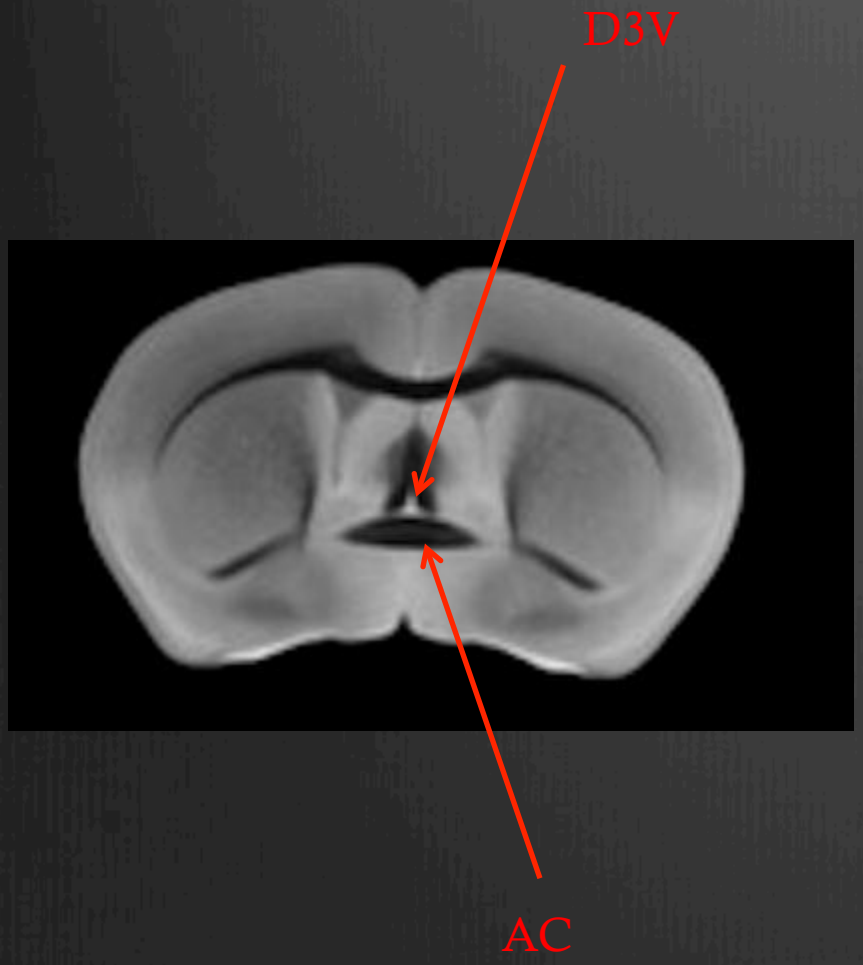
- Periodic Spiral Sampling

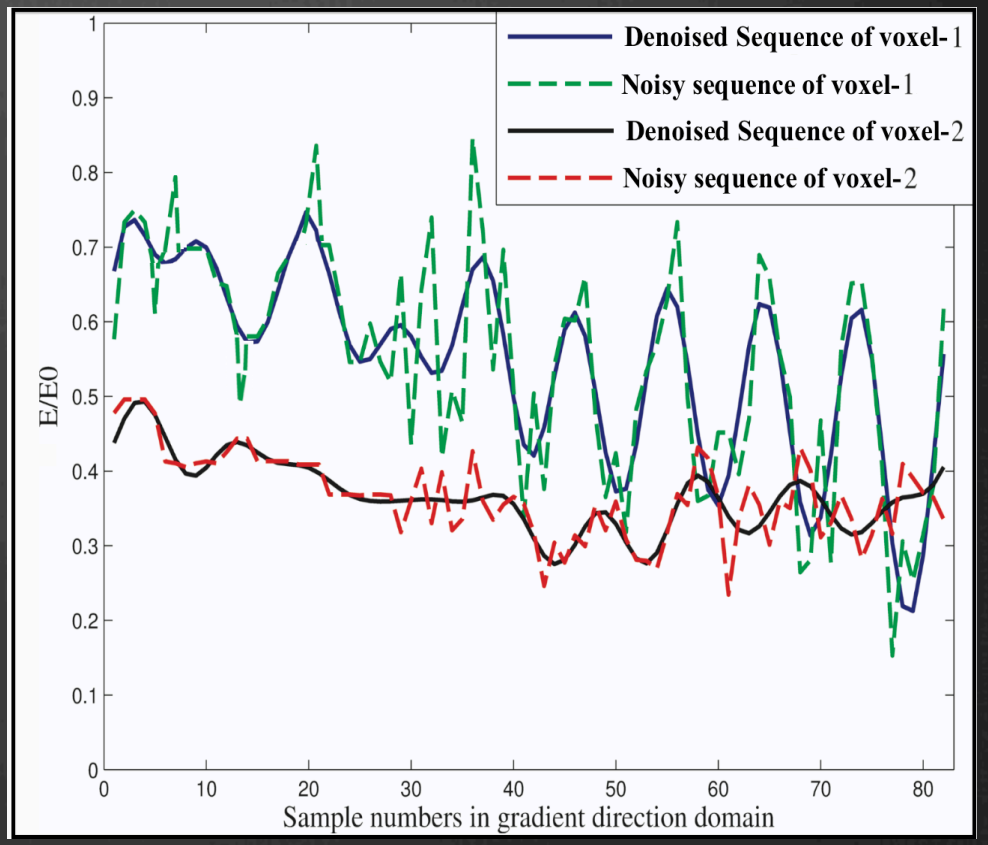


- Alchemists: 26 samples
- Spiral : 226 samples

Method

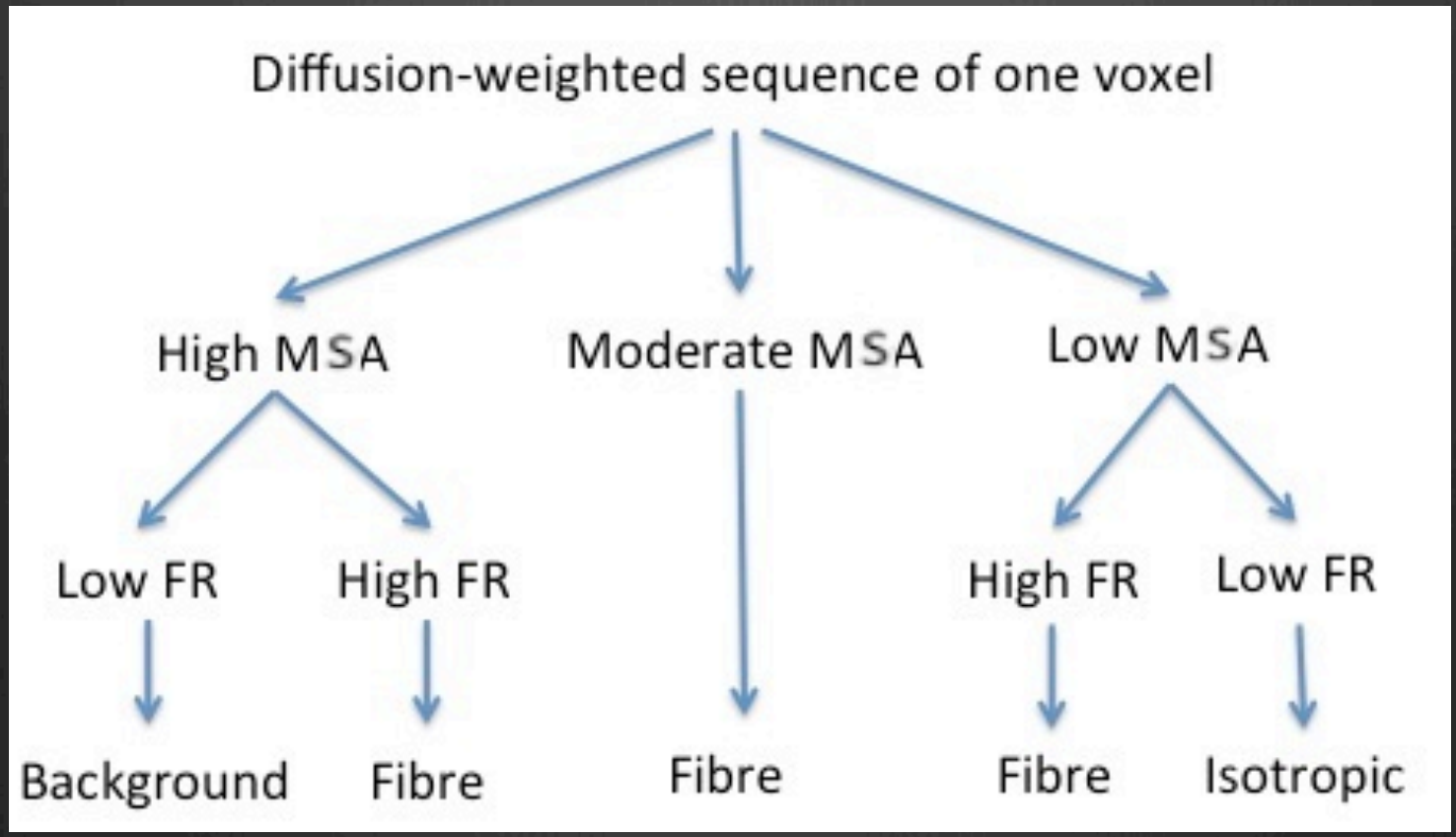
- Post-processing





Method

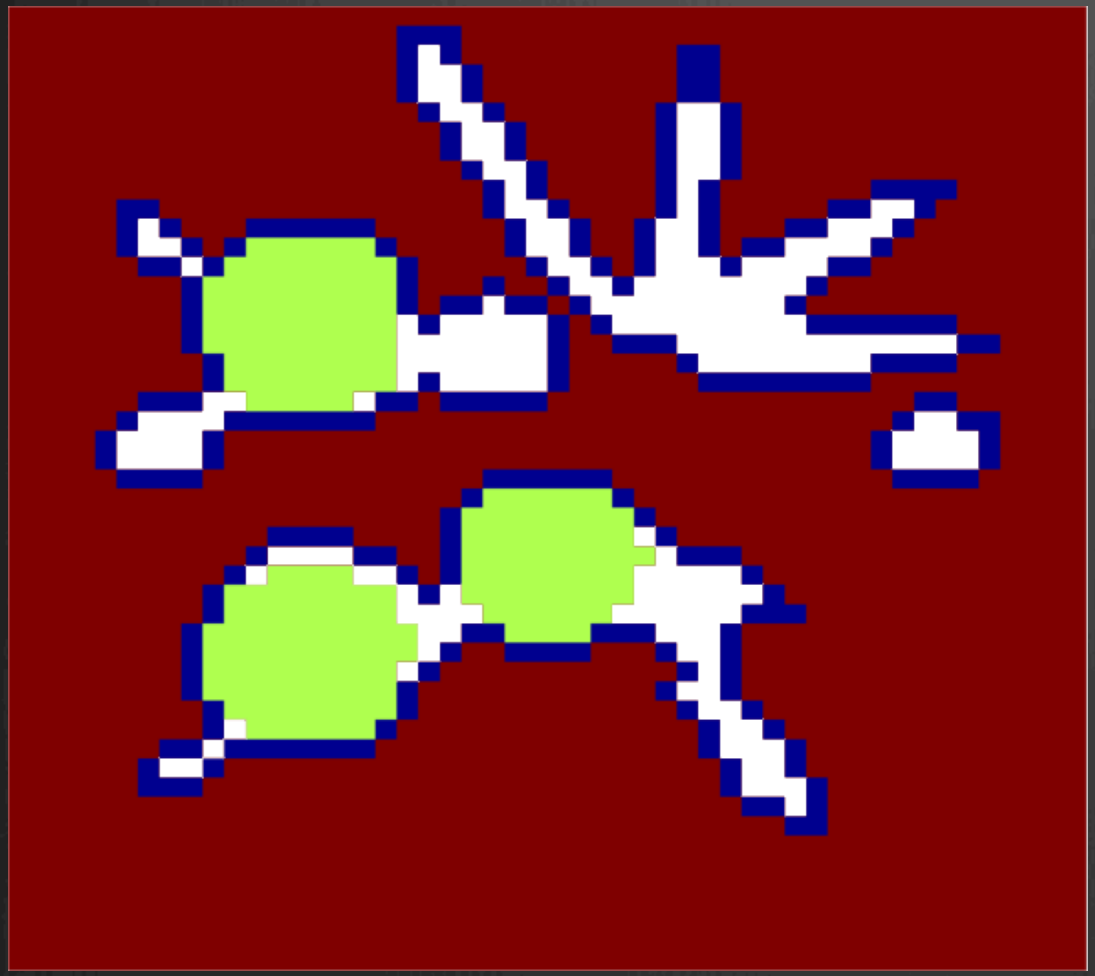
- Post-processing (Decision tree)



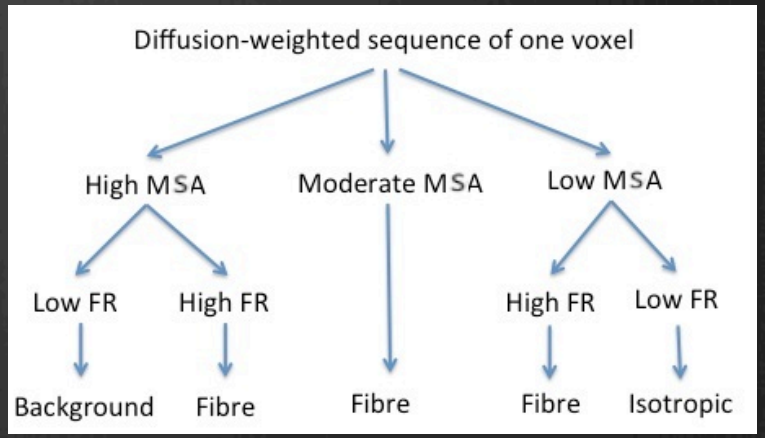
- MSA: Mean Signal Attenuation
- FR: Fluctuation Rate

Method

- Post-processing

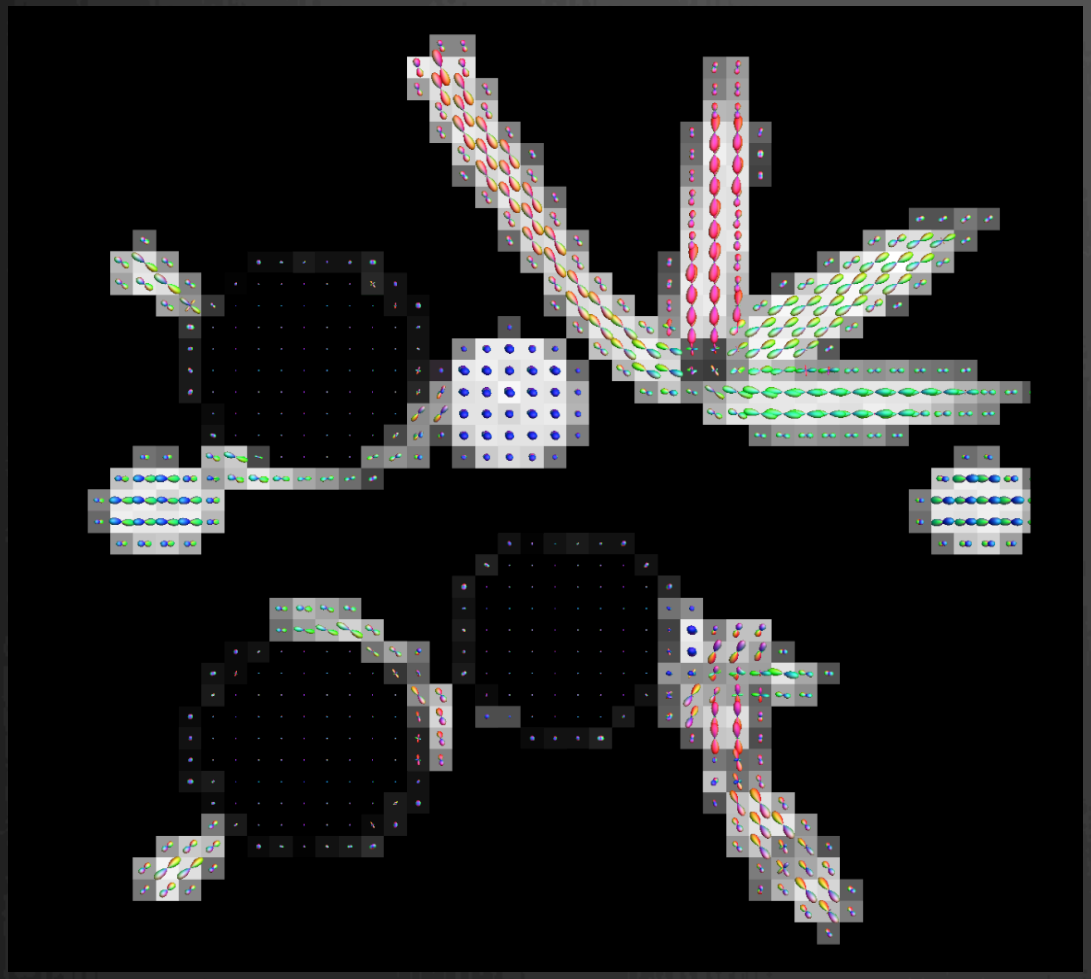


Green: Isotropic
White: Fibre
Red: Background
Blue: Boundary



Method

- Post-processing

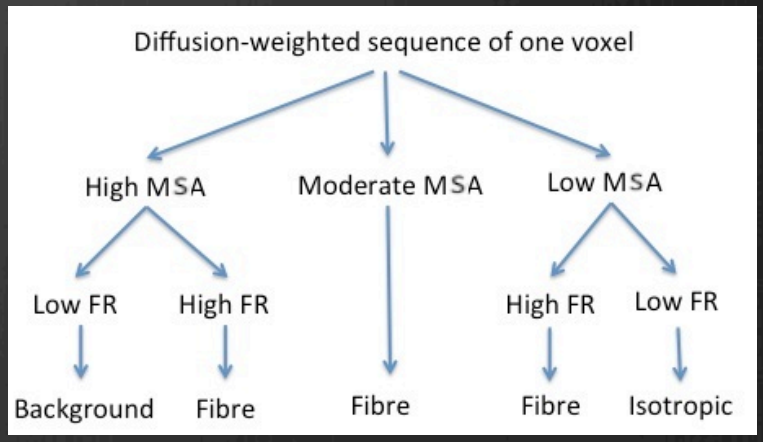


Isotropic: sphere

Fiber: SH, 6^{th} order

Background: 0

Boundary: SH 2^{nd} order



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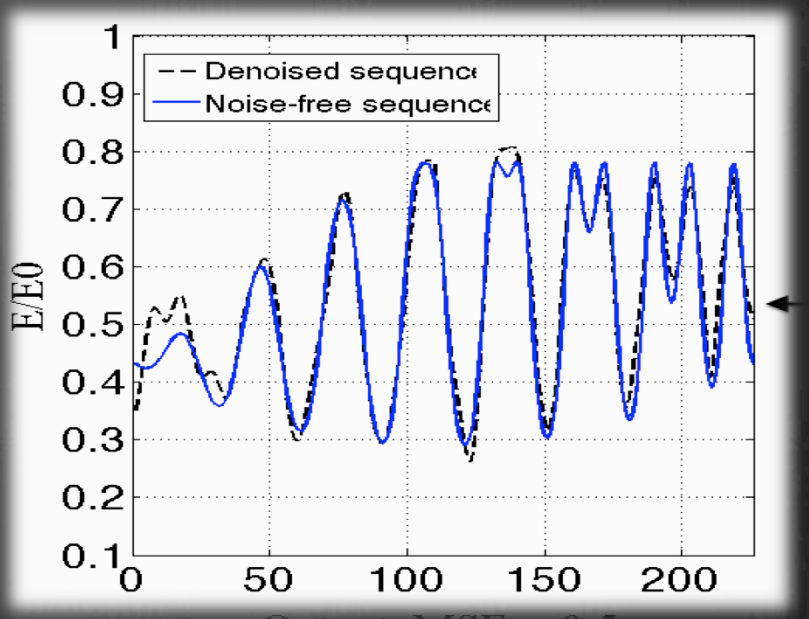
Alchemists

- Interpolation
  - 26 samples
  - 200 spherical points



- Therefore:
  - CSD with Spherical Harmonic of order 6th

Outline

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Preliminary results

Noisy (SNR = 10)

Outline

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New Domain

- Cleaner data
- Interpolation
- New features
- Existing methods

Acknowledgement

- A big “thank you” to HARDI contest organizers, specially Alessandro and Emmanuel
- My other team members

Jeiran Choupan, Yaniv Gal, David Reutens, and Steven Yang

Thanks for your attention

- Any question?