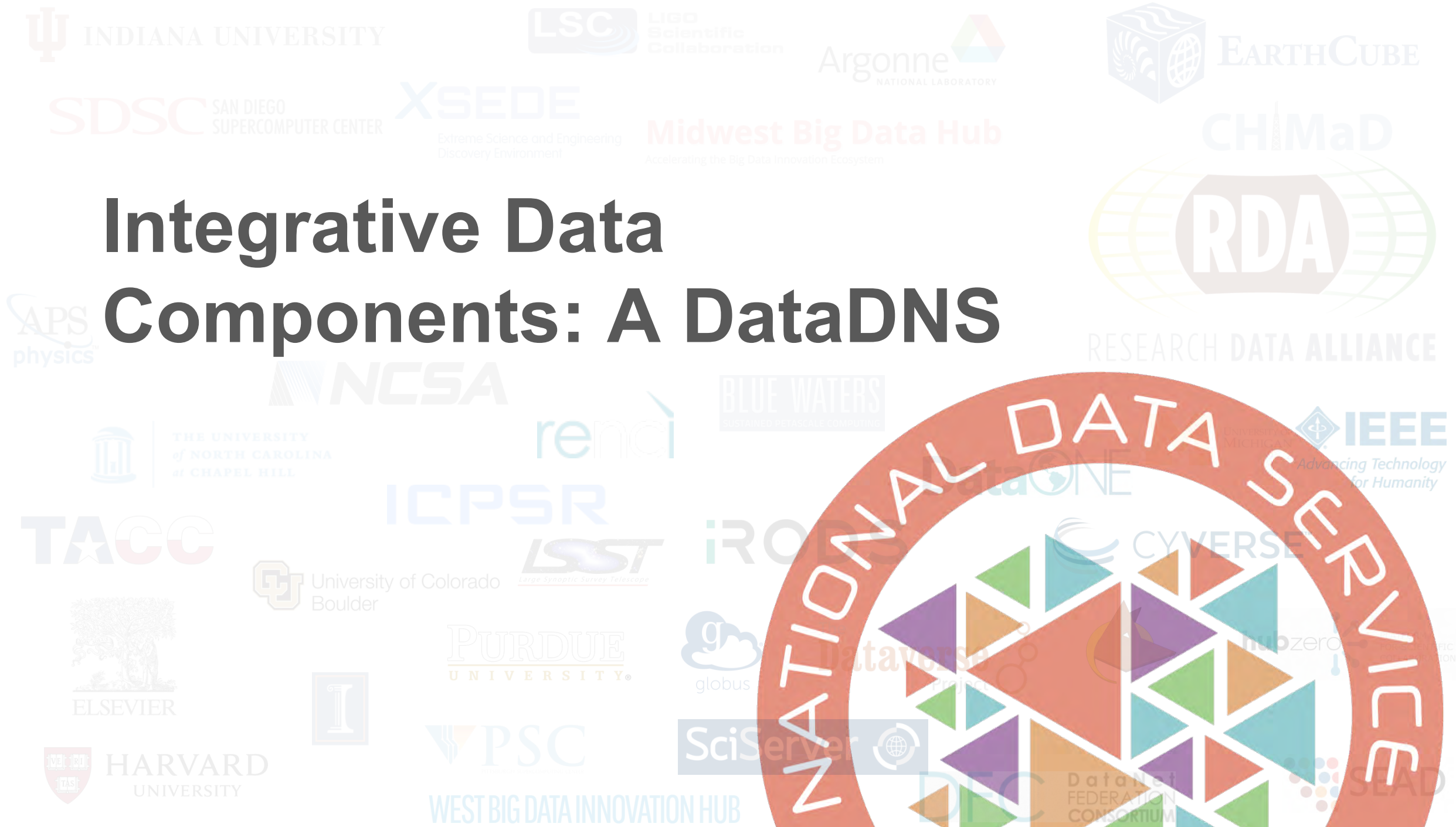


# Integrative Data Components: A DataDNS



# Paradigm Shift in Computing

- **Processor-Centric Computing**
  - Centrally managed computing environment
  - Move data in and out of the computing environment
  - Revolutionized the 20<sup>th</sup> century
  - Computation was costly
  - Digital data generation was much less (~kilobytes to ~gigabytes)
  - Moving data around was easier and cost effective



# Paradigm Shift in Computing

- **Data-Centric Computing**
  - **Distributed computing environments**
  - **Move computing environment closer to data**
  - Computational cost has decreased tremendously
  - Aggregated installed capacity of Top500: ~500 Peta FLOPS
  - 2.5 Quintillion bytes of data generated everyday – IBM estimate
  - Moving data becoming more and more challenging



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HYDROSHARE

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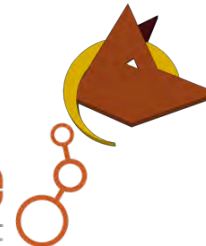


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dSPACE

SciServer

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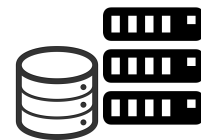
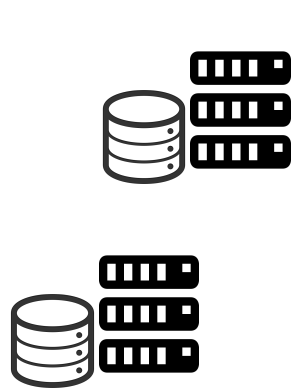
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# The Domain Name Service (DNS)

*Paul Mockapetris, 1983*

- Distributed database to translate domain names into IP addresses
  - e.g. [www.google.com](http://www.google.com) to 172.217.4.100
- **Essential part of the modern internet!**
  - **Used constantly by all yet largely invisible**

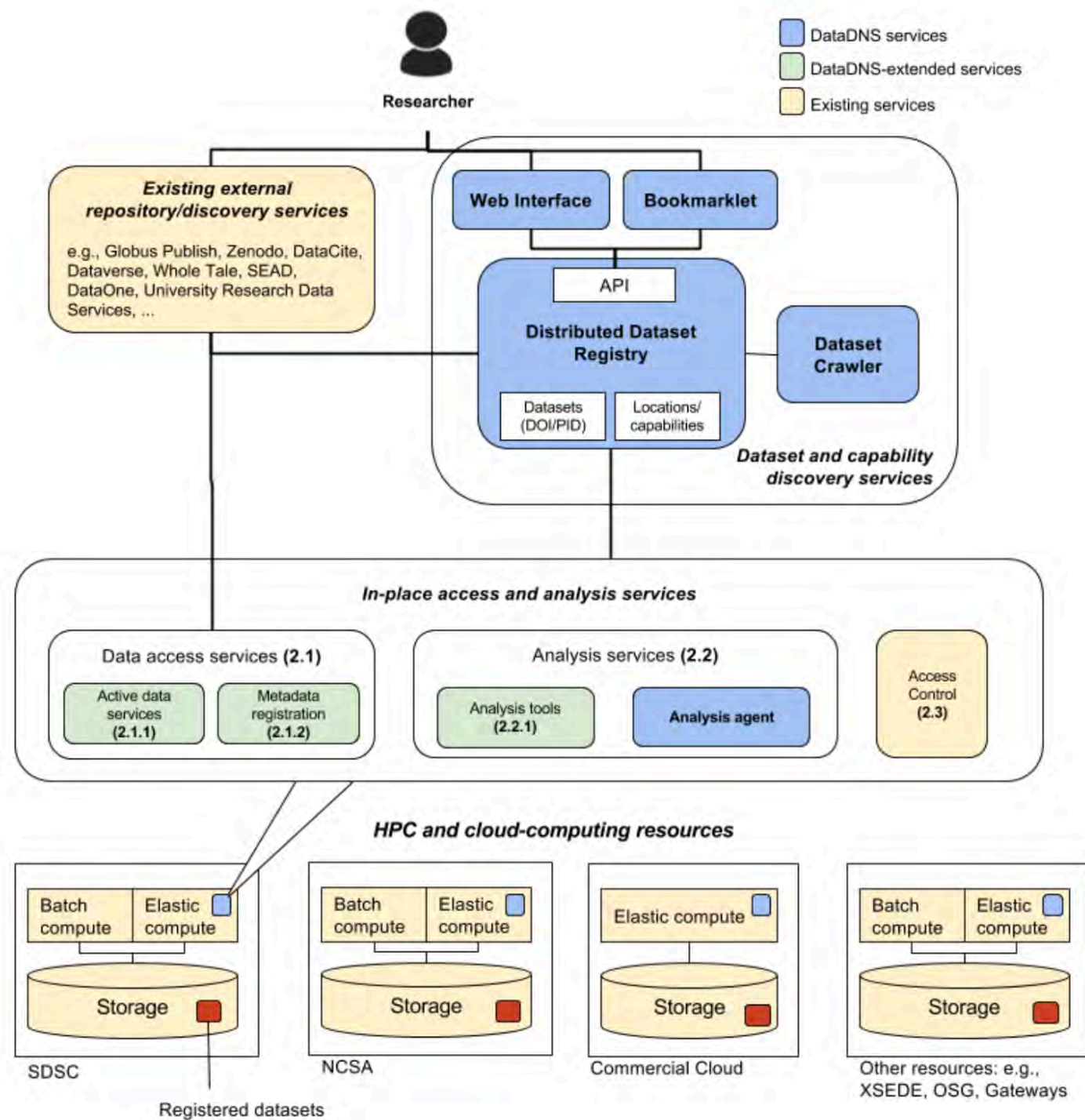


# A Data DNS

- Distributed database to translate data references to physical data locations and associated metadata
  - e.g. doi:10.21970/N9RP4P
    - » Name: “MHD Turbulence in Core-Collapse Supernovae”
    - » URL where the data can be downloaded
    - » Associated paper DOIs: doi:10.1038/nature15755
    - » **The location of the data, e.g. Blue Waters (BW) at path /projects/sciteam/jr6/share/**







## Registered Data Sets

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Dataset	Publications	Location	Launch Notebook	Show Metrics
<p><a href="#">Renaissance Simulations</a>            O'Shea, Brian (oshea@msu.edu); Wise, John; Xu, Hao; Norman, Michael  <a href="#">Cite Dataset</a></p> <p><a href="#">More Information</a></p>	<ul style="list-style-type: none"> <li>O'Shea, B. W., Wise, J. H., Xu, H., &amp; Norman, M. L. (2015). PROBING THE ULTRAVIOLET LUMINOSITY FUNCTION OF THE EARLIEST GALAXIES WITH THE RENAISSANCE SIMULATIONS. <i>The Astrophysical Journal</i>, 807(1), L12. doi:10.1088/2041-8205/807/1/L12</li> <li>Ahn, K., Xu, H., Norman, M. L., Alvarez, M. A., &amp; Wise, J. H. (2015). SPATIALLY EXTENDED 21 cm SIGNAL FROM STRONGLY CLUSTERED UV AND X-RAY SOURCES IN THE EARLY UNIVERSE. <i>The Astrophysical Journal</i>, 802(1), 8. doi:10.1088/0004-637x/802/1/8</li> </ul> <p><a href="#">More</a></p>			
<p><a href="#">Dark Sky Simulations</a>            Warren, Michael; Friedland, Alexander; Holz, Daniel; Skillman, Samuel; Sutter, Paul; Turk, Matthew (mjturk@illinois.edu); Wechsler, Risa  <a href="#">Cite Dataset</a></p> <p><a href="#">More Information</a></p>	<ul style="list-style-type: none"> <li>S. W. Skillman, M. S. Warren, M. J. Turk, R. H. Wechsler, D. E. Holz, P. M. Sutter. Dark Sky Simulations: Early Data Release.</li> <li>Warren, M. S., Friedland, A., Holz, D. E., Skillman, S. W., Sutter, P. M., Turk, M. J., &amp; Wechsler, R. H. (2014). Dark Sky Simulations Collaboration. ZENODO. https://doi.org/10.5281/zenodo.10777</li> </ul>			
<p><a href="#">Magnetohydrodynamic Turbulence Simulations</a>            Mösta, Philipp (pmoesta@berkeley.edu)  <a href="#">Cite Dataset</a></p> <p><a href="#">More Information</a></p>	<ul style="list-style-type: none"> <li>Mösta, P., Ott, C. D., Radice, D., Roberts, L. F., Schnetter, E., &amp; Haas, R. (2015). A large-scale dynamo and magnetoturbulence in rapidly rotating core-collapse supernovae. <i>Nature</i>, 528(7582), 376–379. doi:10.1038/nature15755</li> </ul>			



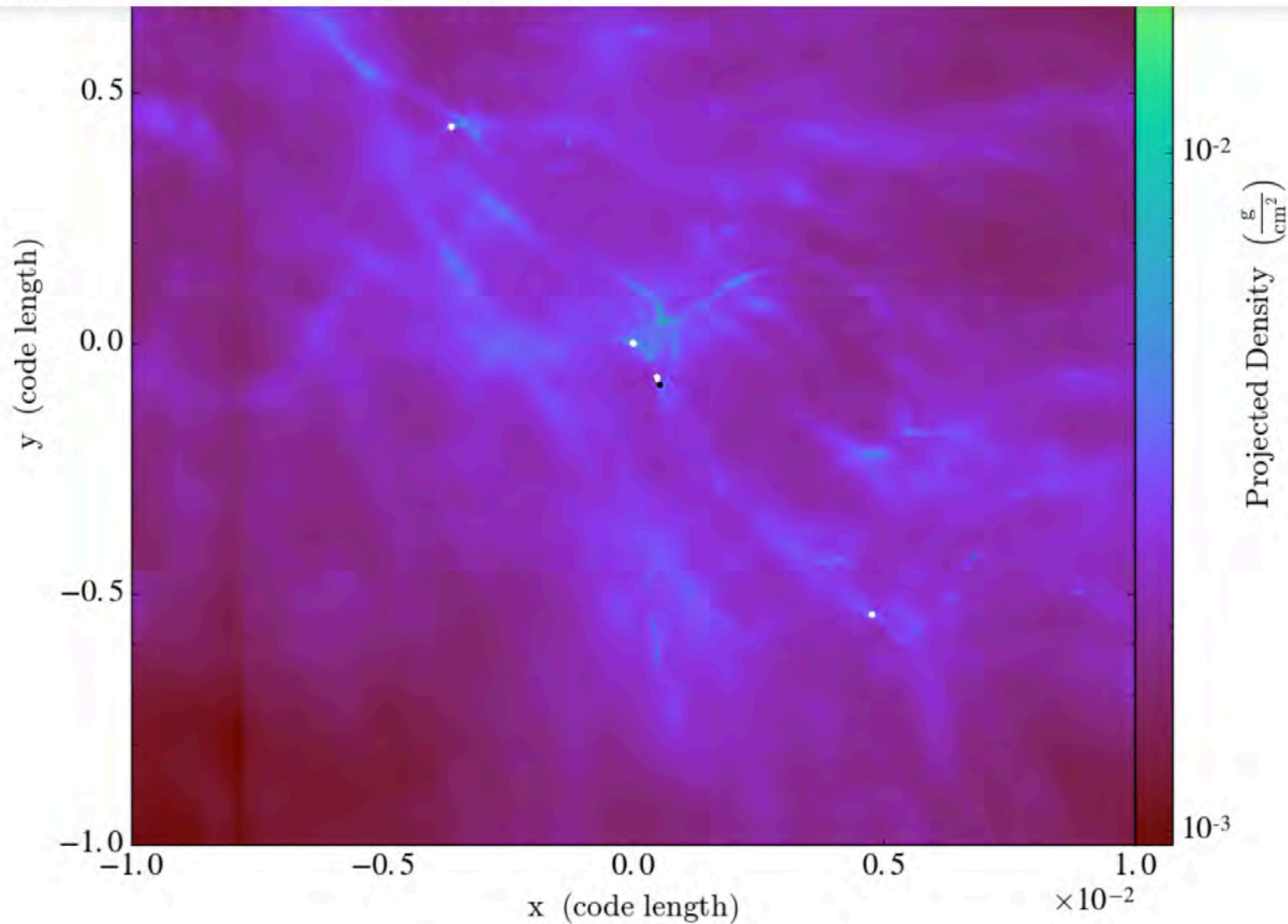
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15-Jun-2016	Ostwald Ripening of Faceted Si Particles in an Al-Si-Cu Melt 	Shahani, Ashwin J.; Xiao, Xianghui; Skinner, Kwan; Peters, Matthew; Voorhees, Peter W.
11-Feb-2016	Dataset for Segmentation of	Gibbs, John W.; Voorhees,

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Author	
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Fife, Julie L.	5
Gibbs, John W.	5
De Graef, Marc	4
Xiao, Xianghui	3
Shahani, Ashwin J.	2
Adams, Jacob F.	1
Allison, John E.	1




Tulane\_Sediment... > TDB\_15\_1

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Data, Stimuli, and Procedures for Plebanek & Sloutsky's Psychological Science article "Costs of Selective Attention: When Children Notice what Adults Miss"

Jan 19, 2017



Sloutsky, Vladimir, 2017, "Data, Stimuli, and Procedures for Plebanek & Sloutsky's Psychological Science article "Costs of Selective Attention: When Children Notice what Adults Miss", doi:10.7910/DVN/7TA47E, Harvard Dataverse, V1



The deposited contains data, stimuli, and and procedure information and ReadMe files for Plebanek & Sloutsky's Psychological Science article "Costs of Selective Attention: When Children Notice what Adults Miss".

JCMT Continuum Data

Jan 19, 2017 - CMZ Images Dataverse



James di Francesco; Douglas Pierce-Price, 2017, "JCMT Continuum Data", doi:10.7910/DVN/K4GWMI,





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