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February 2016

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A compact neutron spectrometer for characterizing inertial confinement fusion implosions at OMEGA and the NIF

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A compact spectrometer for measurements of the primary deuterium-tritium neutron spectrum has been designed and implemented on the OMEGA laser facility. This instrument uses the recoil spectrometry technique, where neutrons produced in an implosion elastically scatter protons in a plastic foil, which are subsequently detected by a proton spectrometer. This diagnostic is capable of measuring the yield to ~±10% accuracy, and mean neutron energy to ~±50 keV precision. As these compact spectrometers can be readily placed at several locations around an implosion, effects of residual fuel bulk flows during burn can be measured. Future improvements to reduce the neutron energy uncertainty to ±15-20 keV are discussed, which will enable measurements of fuel velocities to an accuracy of ~±25-40 km/s.

Authors: Zylstra, A. B. [1]; Gatu Johnson, M. [1]; Frenje, J. A. [1]; Séguin, F. H. [1]; Rinderknecht, H. G. [1]; Rosenberg, M. J. [1]; Sio, H. W. [1]; Li, C. K. [1]; Petrasso, R. D. [1]; McCluskey, M. [2]; Mastrosimone, D. [2]; Glebov, V. Yu. [2]; Forrest, C. [2]; Stoeckl, C. [2]; Sangster, T. C. [2]

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Publication Date: 2014-06-04

OSTI Identifier: 1172498

Grant/Contract Number: NA0002035

Type: Accepted Manuscript

This content will become publicly available on June 4, 2016

Multispecies density peaking in gyrokinetic turbulence simulations of low collisionality Alcator C-Mod plasmas

« Prev Next »

Authors: Mikkelsen, D. R. [1]; Bitter, M. [1]; Delgado-Aparicio, L. [1]; Hill, K. W. [1]; Greenwald, M. [2]; Howard, N. T. [2]; Hughes, J. W. [2]; Rice, J. E. [2]; Reinke, M. L. [3]; Podpaly, Y. [4]; Ma, Y. [5]; Candy, J. [6]; Waltz, R. E. [6]

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Publication Date: 2015-06-01

OSTI Identifier: 1228197

Grant/Contract Number: FG02-95ER54309; FC0299ER54512; AC02-76CH03073

Type: Publisher's Accepted Manuscript

Journal Name: Physics of Plasmas

Additional Journal Information: Journal Volume: 22; Journal Issue: 6; Journal ID: ISSN 1070-664X

Publisher: American Institute of Physics

Sponsoring Org: USDOE

Country of Publication: United States

Language: English

S 20 years of research on the Alcator C-Mod tokamak[a]

[a] Paper AR1 1, Bull. Am. Phys. Soc. **58**, 21 (2013).

M. Greenwald[1,b], A. Bader[2], S. Baek[1], M. Bakhtiari[2], H. Barnard[1], W. Beck[1], W. Bergerson[3], I. Bespamyatnov[4], P. Bonoli[1], D. Brower[3], D. Brunner[1], W. Burke[1], J. Candy[5], M. Churchill[6], I. Cziegler[7], A. Diallo[6], A. Dominguez[6], B. Duval[8], E. Edlund[6], P. Ennever[1], D. Ernst[1], I. Faust[1], C. Fiore[1], T. Fredian[1], O. Garcia[9], C. Gao[1], J. Goetz[2], T. Golfinopoulos[1], R. Granetz[1], O. Grulke[10], Z. Hartwig[1], S. Horne[11], N. Howard[12], A. Hubbard[1], J. Hughes[1], I. Hutchinson[1], J. Irby[1], V. Izzo[7], C. Kessel[6], B. LaBombard[1], C. Lau[13], C. Li[1], Y. Lin[1], B. Lipschultz[14], A. Loarte[15], E. Marmar[1], A. Mazurenko[16], G. McCracken[17], R. McDermott[18], O. Meneghini[5], D. Mikkelsen[6], D. Mossessian[19], R. Mumgaard[1], J. Myra[20], E. Nelson-Melby[21], R. Ochoukov[18], G. Olynyk[22], R. Parker[1], S. Pitcher[15], Y. Podpaly[23], M. Porkolab[1], M. Reinke[14], J. Rice[1], W. Rowan[4], A. Schmidt[24], S. Scott[6], S. Shiraiwa[1], J. Sierchio[1], N. Smick[25], J. A. Snipes[15], P. Snyder[5], B. Sorbom[1], J. Stillerman[1], C. Sung[1], Y. Takase[26], V. Tang[24], J. Terry[1], D. Terry[1], C. Theiler[8], A. Tronchin-James[27], N. Tsujii[26], R. Vieira[1], J. Walk[1], G. Wallace[1], A. White[1], D. Whyte[1], J. Wilson[6], S. Wolfe[1], G. Wright[1], J. Wright[1], S. Wukitch[1] and S. Zweben[6]

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[b] Invited speaker.

Phys. Plasmas **21**, 110501 (2014); http://dx.doi.org/10.1063/1.4901920

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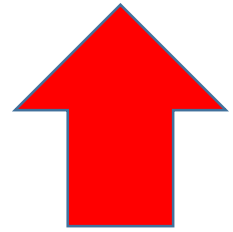

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ABSTRACT

Key Topics

20 Years of Research on the Alcator C-Mod Tokamak

M. Greenwald[1], A. Bader[2], S. Baek[1], M. Bakhtiari[2], H. Barnard[1], W. Beck[1], W. Bergerson[3], I. Bespamyatnov[4], P. Bonoli[1], D. Brower[3], D. Brunner[1], W. Burke[1], J. Candy[5], M. Churchill[6], I. Cziegler[7], A. Diallo[6], A. Dominguez[6], B. Duval[8], E. Edlund[6], P. Ennever[1], D. Ernst[1], I. Faust[1], C. Fiore[1], T. Fredian[1], O. Garcia[9], C. Gao[1], J. Goetz[2], T. Golfinopoulos[1], R. Granetz[1], O. Grulke[10], Z. Hartwig[1], S. Horne[11], N. Howard[12], A. Hubbard[1], J. Hughes[1], I. Hutchinson[1], J. Irby[1], V. Izzo[7], C. Kessel[6], B. LaBombard[1], C. Lau[27], C. Li[1], Y. Lin[1], B. Lipschultz[13], A. Loarte[14], E. Marmar[1], A. Mazurenko[15], G. McCracken[16], R. McDermott[17], O. Meneghini[5], D. Mikkelsen[6], D. Mossessian[18], R. Mumgaard[1], J. Myra[19], E. Nelson-Melby[20], R. Ochoukov[17], G. Olynyk[21], R. Parker[1], S. Pitcher[14], Y. Podpaly[22], M. Porkolab[1], M. Reinke[13], J. Rice[1], W. Rowan[4], A. Schmidt[23], S. Scott[6], S. Shiraiwa[1], J. Sierchio[1], N. Smick[24], J.A. Snipes[14], P. Snyder[5], B. Sorbom[1], J. Stillerman[1], C. Sung[1], Y. Takase[25], V. Tang[23], J. Terry[1], D. Terry[1], C. Theiler[8], A. Tronchin-James[26], N. Tsujii[25], R. Vieira[1], J. Walk[1], G. Wallace[1], A. White[1], D. Whyte[1], J. Wilson[6], S. Wolfe[1], G. Wright[1], J. Wright[1], S. Wukitch[1], S. Zweben[6]

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[10] MPI for Plasma Physics, EURATOM Association, D-17491 Greifswald, Germany and Ernst-Moritz-Arndt University, D-17489 Greifswald, Germany

[11] Energetiq Technology, 7 Constitution Way, Woburn, MA 01801

About

The Dataverse Project

The Dataverse is an open source web application to share, preserve, cite, explore and analyze research data. It facilitates making data available to others, and allows you to replicate others work. Researchers, data authors, publishers, data distributors, and affiliated institutions all receive appropriate credit.

A Dataverse repository hosts multiple dataverses. Each dataverse contains datatset or other dataverses, and each dataset contains descriptive metadata and data files (including documentation and code that accompany the data).

A Collaboration with Harvard Library, Harvard University IT, and IQSS

Since 2012, the Institute for Quantitative Social Science has collaborated with Harvard Library and Harvard University Information Technology (HUIT) to make the Harvard Dataverse openly available to researchers and data collectors worldwide from all disciplines to deposit data. In this collaboration IQSS leads the development of the open source Dataverse software; and in conjunction with the Open Data Assistance Program at Harvard (a collaboration with Harvard Library, the Office for Scholarly Communication and IQSS) provides user support for the Harvard Dataverse. The Library Technology Services at HUIT provides hosting and backups support of the Harvard Dataverse.

History of the Project

Dataverse software is being developed at Harvard's Institute for Quantitative Social Science (IQSS), along with many collaborators and contributors worldwide. Dataverse was built on our experience with our earlier Virtual Data Center (VDC) project, which spanned 1999-2006 and was organized by Micah Altman, Gary King, and Sidney Verba as a collaboration between the Harvard-MIT Data Center (now part of IQSS) and the Harvard University Library. Precursors to the VDC date to 1987, comprising such entities as preweb software to transfer cataloging information by FTP to other sites across campus automatically at designated times, and even to a stand-alone software guide to local data.

PSFC **Plasma Science and Fusion Center Dataverse** (Massachusetts Institute of Technology) Unpublished

MIT PSFC: Innovators in magnetic and inertial confinement fusion and related plasma science and technology

Slowing of Magnetic Reconnection Concurrent with Weakening Plasma Inflows and Increasing Collisionality in Strongly-Driven Laser-Plasma Experiments

Draft Unpublished

Rosenberg, M. J.; Li, C. K.; Fox, W.; Zylstra, A. B; Stoeckl, C.; Seguin, F. H.; Frenje, J. A.; Petrasso, R. D., 2016, "Slowing of Magnetic Reconnection Concurrent with Weakening Plasma Inflows and Increasing Collisionality in Strongly-Driven Laser-Plasma Experiments", http://dx.doi.org/10.7910/DVN/29168, Harvard Dataverse, DRAFT VERSION

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Description	An evolution of magnetic reconnection behavior, from fast jets to the slowing of reconnection and the establishment of a stable current sheet, has been observed in strongly-driven, electron jets (Vjet~20VA) ejected from the reconnection region, indicating that two-fluid or collisionless magnetic reconnection occurs early in time. The absence of jets and the persistence of strong, stable magnetic fields at late times indicates that the reconnection process slows down, while plasma flows stagnate and plasma conditions evolve to a cooler, denser, more collisional state. These results demonstrate that powerful initial plasma flows are not sufficient to force a complete reconnection of magnetic fields, even in the strongly-driven regime.
Subject	Physics
Keyword	high-beta plasmas, magnetic reconnection, magnetic fields
Related Publication	Submitted for publication to Physical Review Letters doi: PSFC/JA-14-39

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HMDC Harvard-MIT Data Center

MIT Libraries Dataverse (Massachusetts Institute of Technology) MIT Libraries

International Country Risk Guide (ICRG) Researchers Dataset

International Country Risk Guide (ICRG) Researchers, 2013, "International Country Risk Guide (ICRG) Researchers Dataset", http://hdl.handle.net/1902.1/21446, Harvard Dataverse, V1

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Description

Main data files comprise 22 variables in three subcategories of risk (political, financial, and economic) for 146 countries for 1984-2009. Data are annual averages of the components of the ICRG Risk Ratings (Tables 3B, 4B, and 5B) published in the International Country Risk Guide. Indices include: political: government stability, socioeconomic conditions, investment profile, internal conflict, external conflict, corruption, military in politics, religion in politics, law and order, ethnic te nsions, democratic accountability, and bureaucratic quality; financial: foreign debt, exchange rate stability, debt service, current account, international liquidity; and economic: inflation, GDP per head, GDP growth, budget balance, current account as % of GDP.

Also includes the IRIS-3 dataset by Steve Knack and Philip Keefer, which covers the period of 1982-1997 and computed scores for six additional political risk variables: corruption in government, rule of law, bureaucratic quality, ethnic tensions, repudiation of contracts by government, and risk of expropriation.

Additional data files provide country risk ratings and databanks (economic and social indicators) for new emerging markets for 2000-2009.

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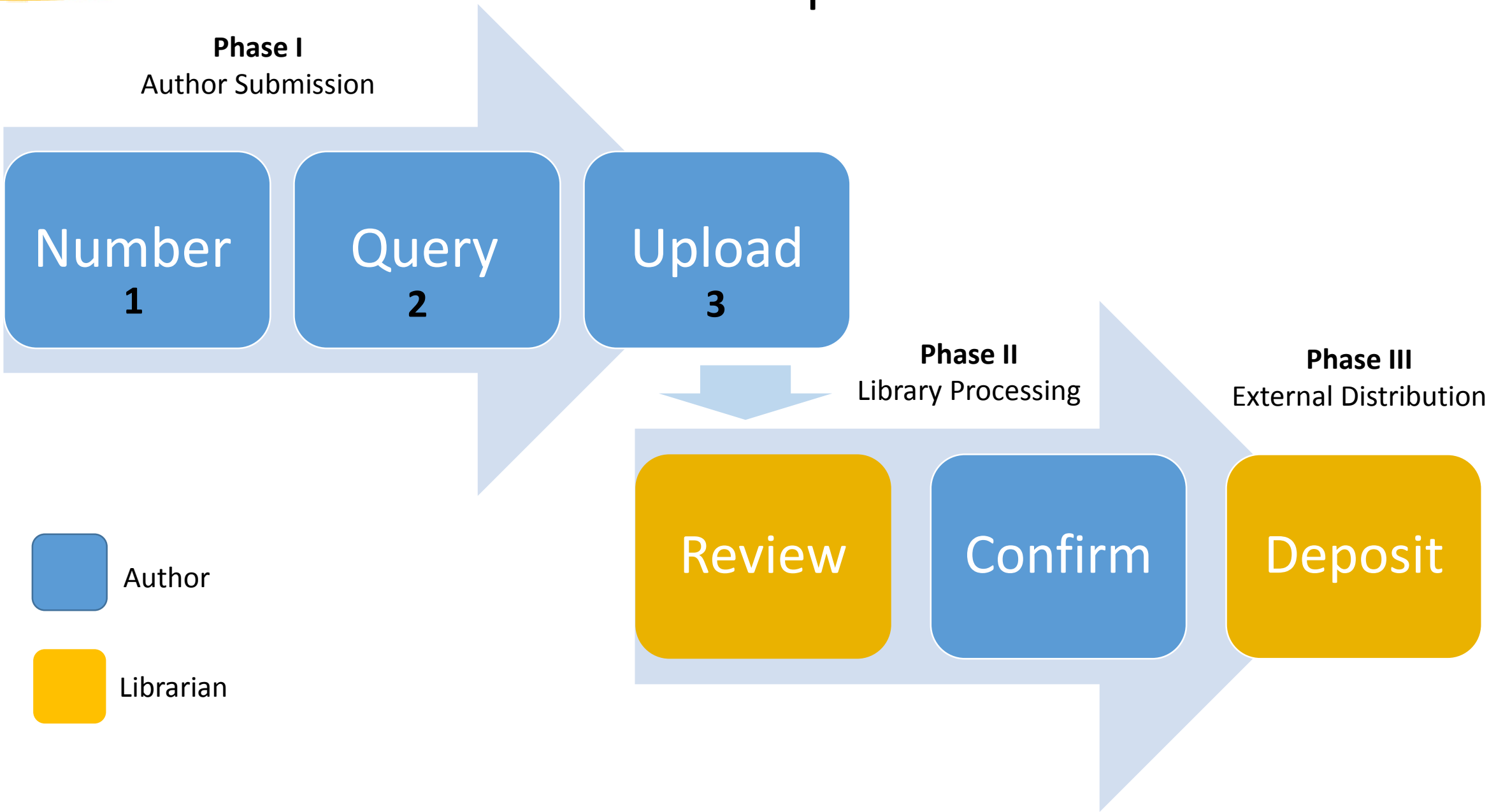

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Submitter: Jason Thomas
Created: 02/23/2016 13:10
Status: Number Assigned
Title: This is a test Alcator C-Mod title

Authors: Greenwald, M.; Author2, A.; Author3, B.

Keywords: (minimum 5)
× activation & afterheat × ADX × Alcator C-Mod × boundary value problems × fusion reactors

First PSFC author: Greenwald, Martin
First author: ☐ Same as submitter
Corresponding author: ☐ Same as submitter

Manuscript Completed: No
Expected Completion: April 2016
Published Status: Submitted

Grant Number(s):
× Greenwald,Martin J, "DOE - Chicago", "DE-FC02-99ER54512", Fab Eq - Psfc Remote Collaboration Upgrade
× Greenwald,Martin J, "DOE - Chicago", "DE-SC0012470", Mdsplus Development And Support

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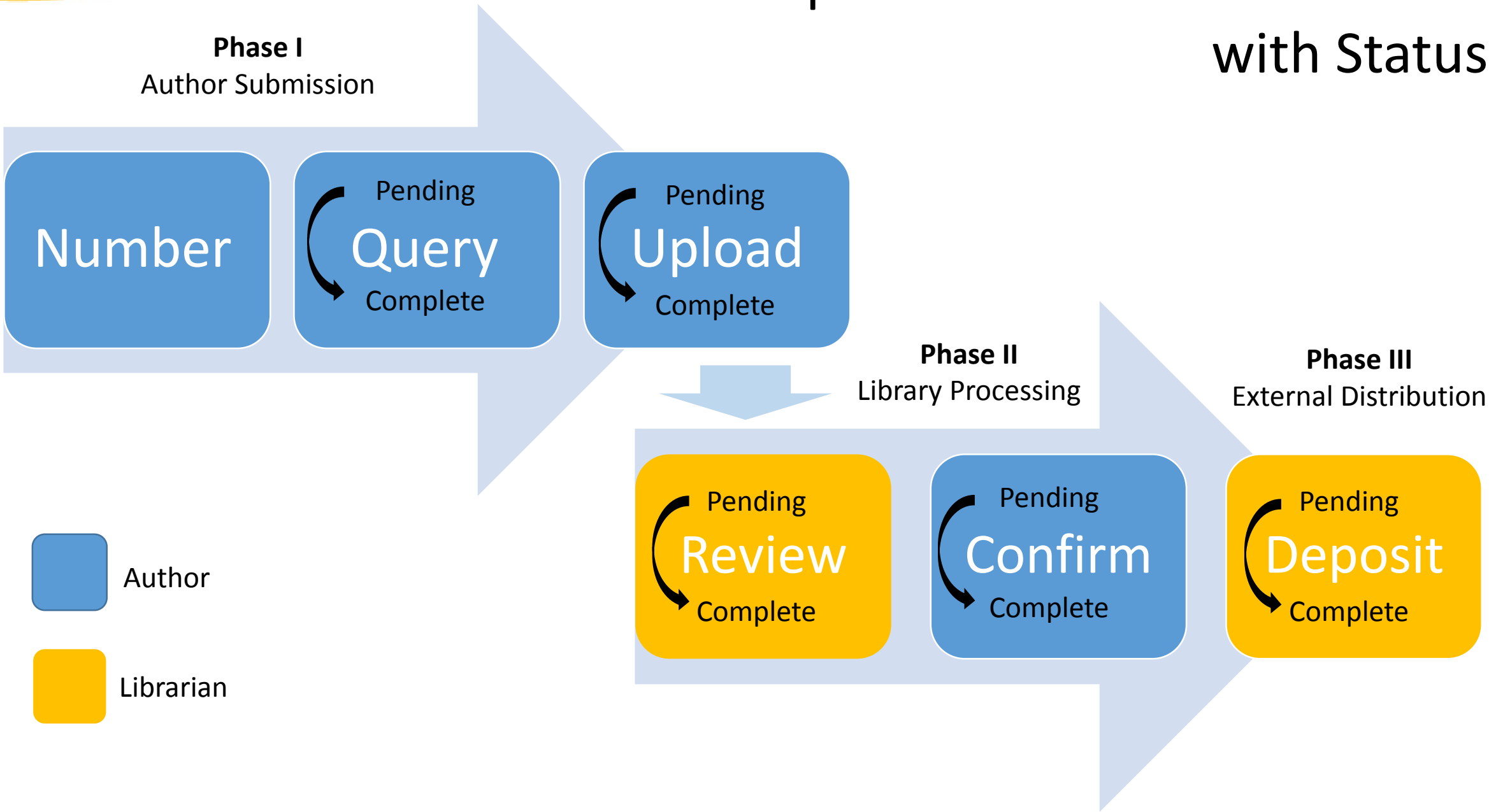

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PSFC/JA-16-4	Greenwald, M.	**Alcator C-Mod title**	02/23/2016 13:10	Jason Thomas	Pending Upload

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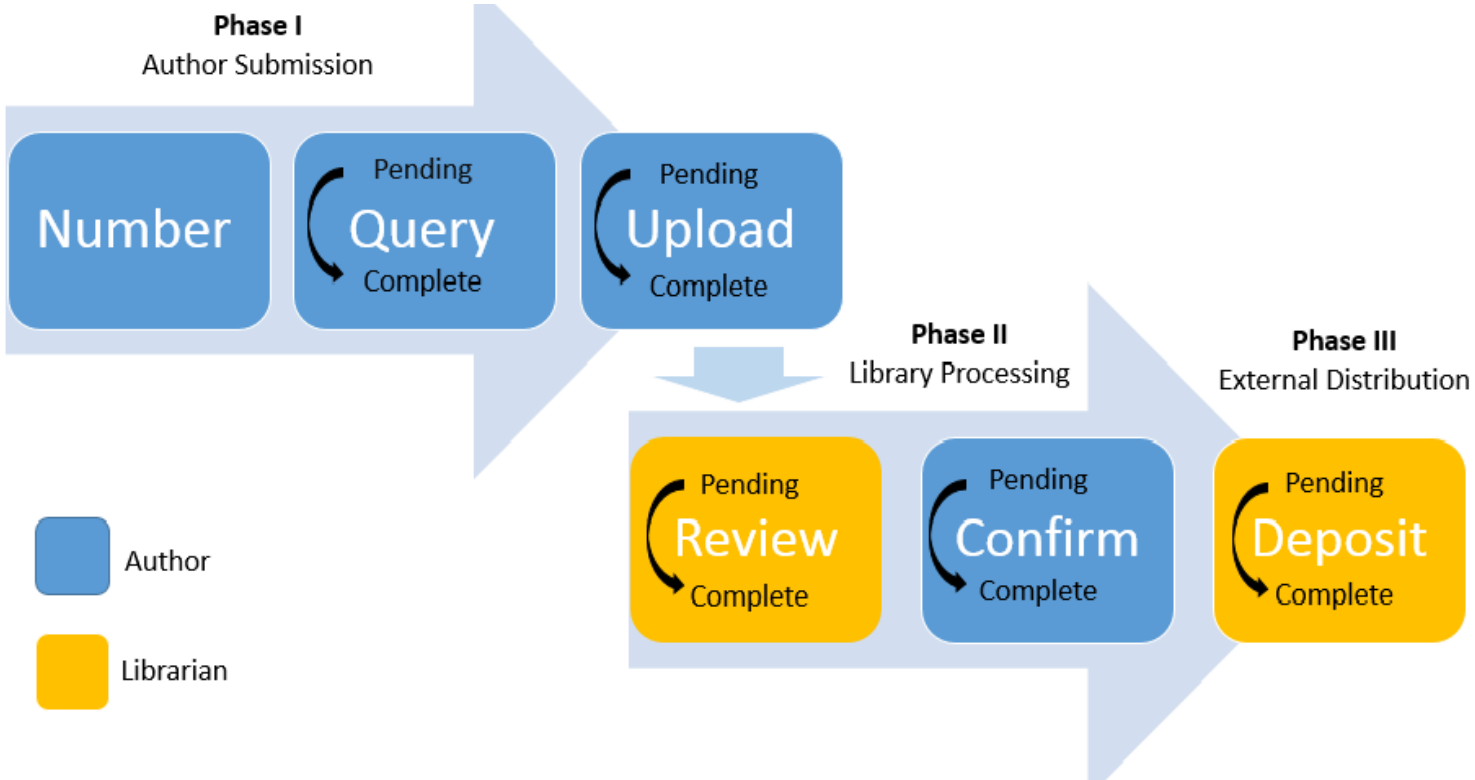

Tools & Resources

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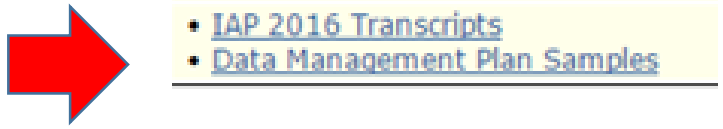

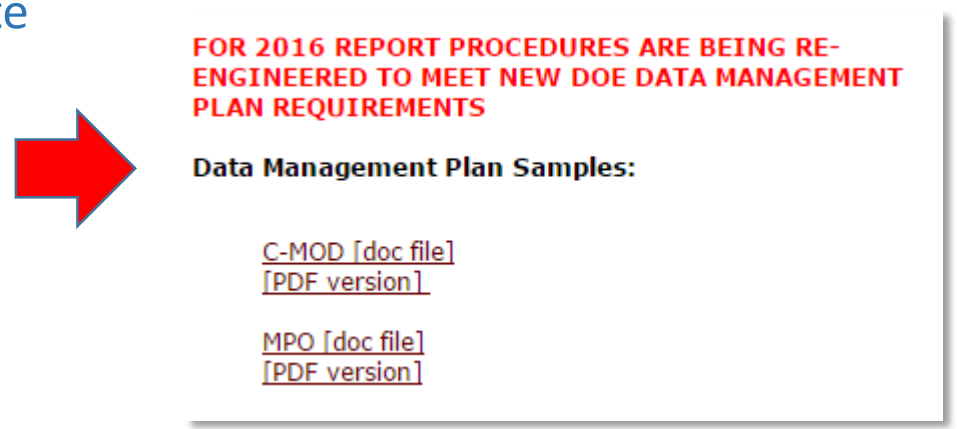

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