

Joel Sander, Ph.D.

Department of Physics

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(a) Education and Training

Butler University	Physics	B.S, 1998
University of California at Santa Barbara	Physics	Ph.D., 2007
University of California at Santa Barbara	Physics	Postdoctoral Scholar, 2008–2010
Texas A&M University	Physics and Astronomy	Postdoctoral Scholar, 2010–2012
Texas A&M University	Physics and Astronomy	Mitchell Institute Postdoctoral Fellow, 2013

(b) Research and Professional Experience

2013–present: **Assistant Professor**, University of South Dakota, Vermillion, SD

2013: **Mitchell Institute Postdoctoral Fellow**, Texas A&M University, College Station, TX

2010–2012: **Postdoctoral Scholar**, Texas A&M University, College Station, TX

2008–2010: **Postdoctoral Scholar**, University of California at Santa Barbara, Santa Barbara, CA

(c) Publications

Publications Most Closely Related

1. “*WIMP-Search Results from the Second CDMSlite Run*”, R. Agnese *et al.* [SuperCDMS Collab.], Submitted to Phys. Rev. Lett., <http://arxiv.org/abs/1509.02448>
2. “*Improved WIMP-search reach of the CDMS II germanium data*”, R. Agnese *et al.* [CDMS II Collab.], Phys. Rev. D **92**, 072003 (2015), <http://dx.doi.org/10.1103/PhysRevD.92.072003>
3. “*Maximum likelihood analysis of low energy CDMS II germanium data*”, R. Agnese *et al.* [SuperCDMS Collab.], Phys. Rev. D **91**, 052021 (2015), doi:10.1103/PhysRevD.91.052021.
4. “*First direct limits on Lightly Ionizing Particles with electric charge less than $e/6$* ”, R. Agnese *et al.* [CDMS II Collab.], Phys. Rev. Lett. **114**, 111302 (2015), doi:10.1103/PhysRevLett.114.111302.
5. “*Dark matter effective field theory scattering in direct detection experiments*”, R. Agnese *et al.* [SuperCDMS Collab.], Phys. Rev. D **91**, 092004 (2015), doi:10.1103/PhysRevD.91.092004.
6. “*Search for Low-Mass Weakly Interacting Massive Particles Using Voltage-Assisted Calorimetric Ionization Detection in the SuperCDMS Experiment*”, R. Agnese *et al.* [SuperCDMS Collab.], Phys. Rev. Lett. **112**, 041302 (2014), doi:10.1103/PhysRevLett.112.041302.
7. “*Search for Low-Mass Weakly Interacting Massive Particles with SuperCDMS*”, R. Agnese *et al.* [SuperCDMS Collab.], Phys. Rev. Lett. **112**, 241302 (2014), doi:10.1103/PhysRevLett.112.241302.
8. “*Demonstration of Surface Electron Rejection with Interleaved Germanium Detectors for Dark Matter Searches*”, R. Agnese *et al.* [SuperCDMS Collab.], Appl. Phys. Lett. **103**, 164105 (2013), doi:10.1063/1.4826093.
9. “*Silicon Detector Dark Matter Results from the Final Exposure of CDMS II*”, R. Agnese *et al.* [CDMS Collab.], Phys. Rev. Lett. **111**, 251301 (2013), doi:10.1103/PhysRevLett.111.251301.
10. “*The CDMS II Data Acquisition System*”, D.A. Bauer, S. Burke, J. Cooley, M. Crisler, P. Cushman, F. DeJongh, L. Duong, R. Ferril, S.R. Golwala, J. Hall, D. Holmgren, R. Mahapatra, H. Nelson, A. Reisetter, J. Sander, C. Savage, Nucl. Instrum. Methods in Phys. Res. A **638**, 127 (2011), doi:10.1016/j.nima.2011.02.059.

(d) Synergistic Activities

- **(i) Conference organization:** Organizer and session chair for the Workshop on Germanium-Based Detectors and Technologies (2014), organizer and session chair for the TAMU Workshop on Dark Matter (2013), organizer of the Texas A&M High-Energy Phenomenology, Experiment, and Cosmology winter 2013 seminar series, and session chair for Particle Physics and Cosmology (2012).
- **(ii) Colloquiums and seminars given in the past year:** South Dakota State University, Drake University, University of Northern Iowa, Augustana College, Creighton University, Minnesota State University Moorhead. The PI has also given multiple invited talks at conferences and workshops.
- **(iii) SuperCDMS software development:** provides the primary support for and was a key developer of the SuperCDMS Soudan data acquisition system. Co-led development of the SuperCDMS Soudan data quality system and also provides the primary ongoing support.
- **(iv) STEM public outreach in the past year:** presented a session at the 2014 summer Lawrence Brothers Science Camp for 6th-8th grades, presented a session at the 2015 first annual Osher Lifelong Learning Science Happy Hour, and co-organized the 2015 USD Astronomy Day events including a public lecture that is popular with students and the community.
- **(v) SuperCDMS Leadership:** Coordinated the CDMS II search for fractionally charged particles. An active member of the SuperCDMS Board, the SuperCDMS Council, the SuperCDMS Outreach committee, the SuperCDMS Publications and Theses committee, and 2014 Trigger Task Force. G2 SuperCDMS leadership: Level 3 (L3) manager for the detector configuration system; L3 science advisor for the environmental monitoring and inventory software systems.

(e) Collaborators & Other Affiliations

Collaborators and Co-Editors:

The SuperCDMS Collaboration:

<http://cdms.berkeley.edu/>

R. Basu Thakur ^{e,t}	D.A. Bauer ^e	J. Billard ^g	A. Borgland ^k	P.L. Brink ^k
R. Bunker ^m	B. Cabrera ^o	D.O. Caldwell ^s	D.G. Cerdeno ^c	H. Chagani ^v
J. Cooley ⁿ	P. Cushman ^v	P.C.F. Di Stefano ^j	S. Fallows ^v	E. Figueroa-Feliciano ^{g,i}
M. Fritts ^v	G.L. Godfrey ^k	S.R. Golwala ^b	J. Hall ^h	H.R. Harris ^p
S.A. Hertel ^g	D. Holmgren ^e	L. Hsu ^e	M.E. Huber ^q	O. Kamaev ^j
B. Loer ^e	P. Lukens ^e	R. Mahapatra ^p	V. Mandic ^v	N. Mirabolfathi ^{a,o}
R.H. Nelson ^b	S.M. Oser ^r	R. Partridge ^k	M. Pyle ^a	H. Qiu ⁿ
W. Rau ^j	A. Reissetter ^d	T. Saab ^t	B. Sadoulet ^{a,f}	R.W. Schnee ^m
B. Serfass ^a	D. Toback ^p	A.N. Villano ^v	J.S. Wilson ^p	D.H. Wright ^k
S. Yellin ^o	B.A. Young ^l			

(^aBerkeley, ^bCal Tech, ^cDurham U, ^dEvansville U, ^eFNAL, ^fLBL, ^gMIT, ^hPNNL, ⁱNorthwestern, ^jQueens U, ^kSLAC, ^lSanta Clara U, ^mSDSMT, ⁿSMU, ^oStanford U, ^pTAMU, ^qU Colorado Denver, ^rUBC, ^sUCSB, ^tU Florida, ^vUMN) (**47 total collaborators**)

Graduate Advisors and Postdoctoral Sponsors (Total=2):

Harry Nelson, University of California at Santa Barbara (graduate advisor and postdoctoral sponsor)

Rupak Mahapatra, Texas A&M University (postdoctoral sponsor)

Graduate and Postdoctoral Advisees (past 5 years, *women):

Amy L. Roberts*, University of South Dakota (postdoctoral scholar, 2014-present)

University of South Dakota graduate advisees: Sudip Poudel (graduate student, 2015-present), Chiranjibi Ghimire (graduate student, 2014-2015), Xiaoyi Yang* (graduate student, 2014), and Sheikh Saudi (graduate student, 2013-2014)

Advisory Committees: NA