

## 10 Bibliography and References

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- [1] National Science Foundation, *Deep Underground Science and Engineering Laboratory (DUSEL) Site Selection and Technical Design Development*, NSF 06-614 (29 September 2006), [http://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=nsf06614](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf06614)
- [2] National Science Foundation, *Guidelines for Planning and Managing the Major Research Equipment and Facilities Construction (MREFC) Account*, (22 November 2005, 29 pages), <http://www.nsf.gov/bfa/docs/mrefcguidelines1206.pdf>
- [3] N. Tolich, private communication, January 2007, using an average rock density of  $\rho=2.85$
- [4] State of South Dakota: Summary of State Legislation
- [5] B. Sadoulet *et al.*, *Deep Science – A Deep Underground Science and Engineering Initiative* (12 October 2006), [http://www.dusel.org/DUSEL\\_101706.pdf](http://www.dusel.org/DUSEL_101706.pdf)
- [6] Homestake Interim Laboratory Letters of Interest are included in Appendix A5.
- [7] Figure adapted from <http://www.bell-labs.com/org/physicalsciences/projects/darkmatter/darkmatter1.html>
- [8] Figures of bacteria are adapted from T.C. Onstott in <http://www.princeton.edu/main/news/archive/S16/13/72E53/index.xml?section=newsreleases>, <http://www.sacredbalance.com/web/drilldown.html?sku=71>. The paper: L.-H. Lin, *et al.* *Long-Term Sustainability of a High-Energy, Low-Diversity Crustal Biome*, *Science* **314**, 479-482 (20 October 2006) <http://www.sfgate.com/cgi-bin/article.cgi?file=/c/a/2006/10/20/MNGJ9LT21J1.DTL>
- [9] *EarthLab – A Subterranean Laboratory and Observatory to Study Microbial Life, Fluid Flow, and Rock Deformation*, [http://www.earthlab.org/pdfs/earthlab\\_plan\\_6.18.03.pdf](http://www.earthlab.org/pdfs/earthlab_plan_6.18.03.pdf)
- [10] National Research Council, *Geological and Geotechnical Engineering in the New Millennium: Opportunities for Research and Technological Innovation* (2006), <http://fermat.nap.edu/books/0309100097/html>
- [11] National Academies, *Rising Above the Gathering Storm: Energizing and Employing America for a Brighter Economic Future* (Feb. 2006), <http://www.nap.edu/catalog/11463.html>
- [12] The S-1 working group disseminates its reports and input from [www.dusel.org](http://www.dusel.org)
- [13] *Property Donation Agreement between and among Homestake Mining Company of California, the State of South Dakota and the South Dakota Science and Technology Authority*, (14 April 2006)
- [14] The Homestake Scientific Collaboration maintains a public portal for the dissemination of information at <http://www.lbl.gov/nsd/homestake/>
- [15] Homestake Program Committee Report (2006), <http://www.lbl.gov/nsd/homestake/PDFs/HomestakePAC2006.pdf>
- [16] Streaming videos of all presentations from the February 2006 workshop and Program Advisory Committee meeting can be viewed from <http://linnproductions.com/clients/homestake/>
- [17] Some of the reports examining Dark Matter include National Academy Report *Connecting Quarks to the Cosmos* <http://www.nap.edu/books/0309074061/html/> and Interagency Report *Discovering The Quantum Universe*, [http://www.interactions.org/pdf/Quantum\\_Universe\\_GR\\_SP.pdf](http://www.interactions.org/pdf/Quantum_Universe_GR_SP.pdf) and the recent Particle Physics Project Prioritization Panel (P-5) Report <http://www.science.doe.gov/hep/P5RoadmapfinalOctober2006.pdf>. The topic is currently the focus of the Dark Matter Scientific Assessment Group.
- [18] Some of the reports examining Neutrinoless Double Beta Decay include National Academy Report *Connecting Quarks to the Cosmos* <http://www.nap.edu/books/0309074061/html/>, The 2002

- Nuclear Physics Long Range Plan [http://www.er.doe.gov/np/nsac/docs/LRP\\_5547\\_FINAL.pdf](http://www.er.doe.gov/np/nsac/docs/LRP_5547_FINAL.pdf) , 2004 American Physics Society report *The Neutrino Matrix* <http://www.aps.org/policy/reports/multidivisional/neutrino/index.cfm> . The topic is currently the focus of the Neutrino Scientific Assessment Group.
- [19] Neutrino Scientific Assessment Group (NuSAG). Charge Letter can be obtained at <http://www.er.doe.gov/hep/Subpanel%20List.shtm> . Presentations on a Super Neutrino Beam program are at [http://www.hep.net/nusag\\_pub/May2006talks.html](http://www.hep.net/nusag_pub/May2006talks.html)
- [20] The US long baseline neutrino experiment study was launched by the management of FNAL and BNL in 2006 to study the potential for a super neutrino beam facility aimed towards DUSEL and to compare it to locating new large detectors on the surface using the existing NuMI beamline. The several workshops sponsored as part of this study have been a key interaction point between DUSEL and the accelerator laboratories. Details about this study and the materials generated by this study are at <http://nwg.phy.bnl.gov/fnal-bnl>
- [21] D. Bogert *et al.*, *SNuMI conceptual design report*, Proton Plan 2 Document 101-V1.
- [22] See for example the LAr Detector homepage, <http://www.aquila.infn.it/icarus/exp.html>
- [23] V. Barger *et al.*, Phys.Rev. D **74** (2006), 073004
- [24] M.Bishai, *et al.*, BNL-76997-2006-IR. <http://nwg.phy.bnl.gov/fnal-bnl>
- [25] Super Kamiokande detector homepage, [http://www-sk.icrr.u-tokyo.ac.jp/sk/index\\_e.html](http://www-sk.icrr.u-tokyo.ac.jp/sk/index_e.html)  
SNO detector homepage, <http://www.sno.phy.queensu.ca/>
- [26] C.B. Bratton *et al.*, Phys. Rev. D **37**, 3361 (1988); K. Hirata *et al.*, Phys. Rev. D **38**, 448 (1988).
- [27] M.L. Constantini and F. Vissani, e-Print Archive: astro-ph/0508152
- [28] [Lawrence J. Hall](#), [Hitoshi Murayama](#), [Michele Papucci](#), [Gilad Perez](#), *Probing Dark Energy via Neutrino & Supernova Observatories..* e-Print Archive: hep-ph/0607109
- [29] F. Vissani, Astropart. Phys. **26**: 310-313 (2006): <http://www.ge.infn.it/~corvi/luna.html>
- [30] T. Araki *et al.*, Nature **436**, 499 (2005).
- [31] D. Elsworth and C. Fairhurst, 2006. "Technical Report: Geo-Science and Geo-Engineering Research at DUSEL." Based on materials supplied by Coordinators, Working Groups 7, 8, 9: L. Costin, F. Heuze, B.J. McPherson, J.-C. Roegiers, E. Sonnenthal, R.P. Young, 9 October 2006 (59 pages).
- [32] Elsworth, D.; Fairhurst, C. 2007. Some opportunities for science and engineering at DUSEL. In *Rock Mechanics: Meeting Society's Challenges and Demands*, Volume 2, pp. 1085-1090. Edited by Eberhardt, E.; Stead, D.; Morrison, T. Taylor & Francis Group, London, ISBN 978-0-415-44401-9.
- [33] A.M. Linn, 28 February 2006. *Identifying Grand Research Questions in the Solid-Earth Sciences*, EOS 87(9), 98-99. The S-1 report evaluated 6 questions for DUSEL among the preliminary list being considered, as shown on [http://dels.nas.edu/besr/grq\\_input.php](http://dels.nas.edu/besr/grq_input.php):  
1. How did the Earth and planets form? 2. What happened during Earth's dark age (the half billion years before the oldest known rock formed)? 3. How did life begin on Earth? 4. Why plate tectonics? 5. How has Earth's interior evolved, and how has it affected the surface? 6. Why does Earth have a magnetic field? 7. How do life and Earth coevolve? 8. How has Earth's climate changed, and why? 9. Can we understand and predict catastrophic natural events? 10. How do material properties control planetary processes? 11. How do air, water, land, and life processes interact to shape our environment?
- [34] Wang, J.S.Y. 2007. Earth science collaborations for Deep Underground Science and Engineering Laboratory. In *Rock Mechanics: Meeting Society's Challenges and Demands*, Volume 2, pp. 1105-1113. Edited by Eberhardt, E.; Stead, D.; Morrison, T. Taylor & Francis Group, London, ISBN 978-0-415-44401-9.

- [35] Homestake Mining Co., *Infiltration Schematic DWG No. 601W006*, 7 February 1990.
- [36] National Research Council, 2001. “*Basic Research Opportunities in Earth Science*,” <http://www.nap.edu/catalog/9981.html>
- [37] Wang, H.F.; Blair, S.C.; Carson, S.R.; Martel, S.J.; Tokunaga, T. 2007. Investigating coupled mechanical-hydrological behavior in a DUSEL. In *Rock Mechanics: Meeting Society’s Challenges and Demands*, Volume 2, pp. 1115-1122. Edited by Eberhardt, E.; Stead, D.; Morrison, T. Taylor & Francis Group, London, ISBN 978-0-415-44401-9.
- [38] Glaser, S.D.; Roggenthen, W.; Johnson, L.R.; Majer, E.L. 2007. Towards a transparent Earth. In *Rock Mechanics: Meeting Society’s Challenges and Demands*, Volume 2, pp. 1097-1104. Edited by Eberhardt, E.; Stead, D.; Morrison, T. Taylor & Francis Group, London, ISBN 978-0-415-44401-9.
- [39] Laughton, C. 2007. Construction of a large-deep permanent cavern for physics research at the Deep Underground Science and Engineering Laboratory (DUSEL). In *Rock Mechanics: Meeting Society’s Challenges and Demands*, Volume 2, pp. 1091-1096. Edited by Eberhardt, E.; Stead, D.; Morrison, T. Taylor & Francis Group, London, ISBN 978-0-415-44401-9.
- [40] W.G. Pariseau, F. Duan, and C.S. Schmuck, 1987, *Stability Analysis of the VCR Study Stope at the Homestake Mine*, Gold Mining **87**, Chapter 15, pp. 199-213 (17 pages).
- [41] W. Pariseau, *Research Study on Pillar Design for Vertical Crater Retreat (VCR) Mining* (October 1985) US Bureau of Mines Contract Report J0215043 (510 pages)
- [42] Tesarik *et al.*, NIOSH, 2002, *Initial Stability Study of Large Openings for the National Underground Science Laboratory at the Homestake Mine, Lead, SD*, in Hammah *et al.*, editors, Proceedings of the 5<sup>th</sup> North American Rock Mechanics Symposium and the 17<sup>th</sup> Tunneling Association of Canada Conference, NARMS-TAC2002 (Toronto, Ontario, Canada, 7-10 July 2002), pp. 157-163 (7 pages)
- [43] Callahan *et al.*, *Rock Mechanics Evaluations of Detector Rooms in the National Underground Laboratory at Homestake*, RESPEC RSI-1430, February 2001.
- [44] Golder, *Geotechnical Analyses of Proposed Laboratory Excavations at the Former Homestake Mine Lead, South Dakota*, Golder Associates 06-1117-014 (May 2006).
- [45] Golder, *Detector Chamber Analysis*, Golder Associates, 30 June 2004 (28 pages)
- [46] EPA/816-R-99-014 report *Mine, Sand, or Other Backfill Wells* includes Homestake data from upper levels documenting fairly good quality water draining from sand-filled stopes.
- [47] <http://www-esd.lbl.gov/SECUREEarth/>
- [48] [www.bhef.com/initiatives](http://www.bhef.com/initiatives)
- [49] *Science Education and Outreach*, Battelle, 23 March 2006, contracted by the Authority.
- [50] <http://www.earthscope.org/>. The studies of active fault zone and plate boundary in EarthScope complement the Initial Suite of Experiments at Homestake in a relatively seismic-quiet region. See overview of the scope of MREFC’s EarthScope in a town hall meeting: [http://www.agu.org/meetings/fm05/?town\\_hall=town\\_hall\\_h&pageRequest=activities#thm](http://www.agu.org/meetings/fm05/?town_hall=town_hall_h&pageRequest=activities#thm)
- [51] Sadoulet *et al.*, *DUSEL Site Independent Study*, draft of 16 April 2005, [www.dusel.org](http://www.dusel.org)
- [52] Dynatec Corporation, *Feasibility Evaluation of the Conversion of the Homestake Underground Mine to the Homestake Underground Laboratory* (1 December 2004) and *SDSTA Review Committee report of the Homestake Underground Laboratory Conversion Plan* (December 2004)
- [53] South Dakota [Center for the Advancement of Mathematics and Science Education](http://www.mathsc.edu/).
- [54] US Geological Survey Earth Resources and Observation Center, <http://edc.usgs.gov/>
- [55] J. Zahn, *Homestake Mine Open Cut Evaluation of the Pit Water Recovery* (30 Dec. 2002).
- [56] Dynatec Corporation, *Preliminary Ventilation Feasibility Study* (2004).

- [57] Adams Museum Letter of Collaboration (2006).
- [58] M. Cepak, M. Keenihan, M. Nelson, *DENR Underground Inspection Report* (May 28-29, 2003)
- [59] B. Townsend, M. Cepak, M. Keenihan, M. Nelson, *DENR Underground Inspection Report* (June 13, 2003).
- [60] M. Keenihan, M. Nelson, *DENR Underground Inspection Report* (June 6, 2003).
- [61] M. Nelson, *DENR Report on Homestake Mine Underground Inspections Water Quality Summary* (July 2003).
- [62] Rahn and Roggenthen (2002) Hydrogeology of the Homestake Mine, Proc. S.D. Acad. Sci., v. 81, p. 19-25.
- [63] Geochima, Inc., *Geochemical Evolution of Water Quality During Re-filling of the Homestake Mine* (June 13, 2003).
- [64] E. DeWitt, 1989, BHBIB; *Bibliography of Black Hills geology, 1852-1988* (updated to 2003), U.S. Geol. Surv. OFR-89-443-A. This reference tool can be accessed through the Homestake Reference Book web site at [http://homestake.sdsmt.edu/Bibliographies/bibliography\\_of\\_black\\_hills\\_geol.htm](http://homestake.sdsmt.edu/Bibliographies/bibliography_of_black_hills_geol.htm)
- [65] SD School of Mines and Technology has compiled a bibliography that lists ~145 literature articles, PhD and MSc theses, and associated earth science related articles, *Selected references - Homestake.htm*, accessible through the Homestake Reference Book.
- [66] DeWitt, E., J.A. Redden, D. Buscher, A. Wilson, *Geological map of the Black Hills area, South Dakota and Wyoming*, USGS Misc. Inv. Map I-1910 (1989).
- [67] Darton, N.H., *Areal geology South Dakota Central Black Hills region*, USGS (1921).
- [68] Meuschke, J.L., P.W. Philbin, and F.A. Petrafeso, *Aeromagnetic map of the Deadwood area, Black Hills, South Dakota*, 1962, U.S. Geol. Surv., Geophys. Inv. Map GP-304.
- [69] Kleinkopf and Redden, 1975. *Bouguer gravity, aeromagnetic, and generalized geologic maps of parts of the Black Hills of South Dakota and Wyoming*", U.S. Geol. Surv., Geophys. Inv. Map GP-903.
- [70] Nutsch, R.D., *Subsurface gravity in the Homestake Mine, Lead, South Dakota*, M.S. Thesis, University of Idaho (1989).
- [71] A. Smith, "LBNL Low Background Counting Facility" (private communication).
- [72] Roy, R.F., Decker, E.R., Blackwell, D.D., and Birch, F., 1968, "Heat flow in the United States," J. Geophys. Res. **73**, 16, pp. 5207-5221.
- [73] Ashworth, E., *The Applications of Finite Element Analysis to Thermal Conductivity Measurements* (M.S. thesis), South Dakota School of Mines and Technology (1983).
- [74] Rogers, H., *Geology of Precambrian rocks in the Poorman Anticlinorium and Homestake Mine, Black Hills, South Dakota*, in *Metallogeny of Gold in the Black Hills, South Dakota*, C.J. Paterson and A.L. Lisenbee, editors, Guidebook 5-9 September 1990 SEG, pp. 103-111.
- [75] Caddey, S. W., et al. *The Homestake Gold Mine, An Early Proterozoic Iron-Formation-Hosted Gold Deposit, Lawrence County, South Dakota*, in *Geology and Resources of Gold in the United States*, USGS Survey Bulletin 1857-J (1991).