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Education

- **Columbia University**, New York, USA
Ph.D. in Physics (2000-2006), Advisor: *Elena Aprile*. Thesis: *Development of a Liquid Xenon Time Projection Chamber for the XENON Dark Matter Search*
- **Peking University**, Beijing, P.R. China
B.S. in Physics (1996-2000)

Appointments

- **Columbia University**, New York, USA
Associate Research Scientist (2008 - present)
- **Yale University**, New Haven, USA
Postdoctoral Associate (2006 - 2008)

Honors and Awards

- **New Talent Award** and **Bruno Pontecorvo Diploma**, 46th International School of Subnuclear Physics, chaired by *G. 't Hooft* and *A. Zichichi*, Erice, Italy (2008)
- Yale Postdoctoral Prize Fellowship, Yale University (2006-2008)

Research Interests

- Dark matter, neutrino physics, physics beyond the Standard Model, particle astrophysics
- Particle detector development based on noble liquids

Professional Experience

- Member of the **XENON collaboration**, achieved the most sensitive limit for WIMP dark matter detection with XENON10 in 2007. Currently developing the XENON100 experiment and technology towards a ton-scale liquid xenon detector for dark matter search.
- Development of **noble liquid** technology for particle detection: demonstrated the feasibility of two-phase xenon detectors for **dark matter search** in the early years of the XENON program, achieved the best energy resolution in liquid xenon for applications in searching for **neutrinoless double beta decay** and **gamma-ray imaging**.
- Experience on ultra-low background underground physics and ultra-low radioactive material selection, with applications from studying **solar neutrinos** to searching for **proton decay**.

Publications (Total citations: >300)

• **In Refereed Journals**

1. *Limits on spin-dependent WIMP-nucleon cross-sections from the XENON10 experiment*
J. Angel, E. Aprile *et al.* (XENON Collaboration)
Phys. Rev. Lett. 101, 091301 (2008).
2. *First Results from the XENON10 Dark Matter Experiment at the Gran Sasso National Laboratory*
J. Angel, E. Aprile *et al.* (XENON Collaboration)
Phys. Rev. Lett. 100, 021303 (2008).
3. *Preparation of Neutron-activated Xenon for Liquid Xenon Detector Calibration*
K. Ni, R. Hasty, T. Wongjirad, L. Kastens, A. Manzur, D.N. McKinsey
Nucl. Instr. and Meth. A 582 (2007) 569.
4. *Observation of Anti-correlation between Scintillation and Ionization for MeV Gamma-Rays in Liquid Xenon*
E. Aprile, K.L. Giboni, P. Majewski, **K. Ni**, M. Yamashita
Phys. Rev. B 76, 014115 (2007).
5. *Simultaneous Measurement of Ionization and Scintillation from Nuclear Recoils in Liquid Xenon for a Dark Matter Experiment*
E. Aprile, C.E. Dahl, L. DeViveiros, R. Gaitskell, K.L. Giboni, J. Kwong, P. Majewski, **K. Ni**, T. Shutt, M. Yamashita
Phys. Rev. Lett. 97, 081302 (2006).
6. *Scintillation Response of Liquid Xenon to Low Energy Nuclear Recoils*
E. Aprile, K.L. Giboni, P. Majewski, **K. Ni**, M. Yamashita, R. Hasty, A. Manzur, D. McKinsey
Phys. Rev. D. 72, 072006 (2005).
7. *Gamma Ray Spectroscopy with Scintillation Light in Liquid Xenon*
K. Ni, E. Aprile, K.L. Giboni, P. Majewski, M. Yamashita
JNIST 1 P09004 (2006).
8. *Detection of Liquid Xenon Scintillation Light with a Silicon Photomultiplier*
E. Aprile, P. Cushman, **K. Ni**, P. Shagin
Nucl. Instr. and Meth. A 556 (2006) 215-218.
9. *Performance of a Large Area Avalanche Photodiode in a Liquid Xenon Ionization and Scintillation Chamber*
K. Ni, E. Aprile, D. Day, K.L. Giboni, J.A.M. Lopes, P. Majewski, M. Yamashita
Nucl. Instr. and Meth. A 551 (2005) 356-363.
10. *Fast Timing Measurements of Gamma Ray Events in Liquid Xenon*
K.L. Giboni, E. Aprile, P. Majewski, **K. Ni**, M. Yamashita
IEEE Trans. on Nucl. Sci., vol.52, no.5 (2005) 1800-1804.
11. *Proportional Light in a Dual Phase Xenon Chamber*
E. Aprile, K.L. Giboni, P. Majewski, **K. Ni**, M. Yamashita
IEEE Trans. on Nucl. Sci., vol.51, no.5 (2004) 1986-1990.

12. *A New Light Readout System for the LXeGRIT Time Projection Chamber*
E. Aprile, A. Curioni, K.L. Giboni, M. Kobayashi, **K. Ni**, U.G. Oberlack
IEEE Trans. on Nucl. Sci., vol.50, no.5 (2003) 1303-1308.

- **In Conference Proceedings** (selected)

1. *Direct Dark Matter Searches with CDMS and XENON*
K. Ni and L. Baudis, appears in the proceedings of the 36th COSPAR Assembly, Beijing, China, July 2006, astro-ph/0611124.
2. *3D Position Sensitive XeTPC for Dark Matter Search*
J. Angle *et al.* (XENON Collaboration), appears in the Proceedings of 7th UCLA Symposium on Sources and Detection of Dark Matter and Dark Energy in the Universe, February 2006, astro-ph/0609714.
3. *XENON: a 1 tonne Liquid Xenon Experiment for a Sensitive Dark Matter Search*
E. Aprile, E.A. Baltz, A. Curioni, K-L. Giboni, C.J. Hailey, L. Hui, M. Kobayashi, **K. Ni**, W.W. Craig, R.J. Gaitskell, U. Oberlack, T. Shutt, appears in the Proceedings of the International Workshop on Techniques and Applications of Xenon Detectors (Xenon01), ICRR, Univ. of Tokyo, Kashiwa, Japan, December 2001, astro-ph/0207670.

Recent Talks

1. *The Status of XENON100 Experiment*, TeV Particle Astrophysics Conference, IHEP, Beijing, September 2008.
2. (Invited) *Direct Dark Matter Detection with XENON*, High Energy and Astroparticle Physics Seminar, UCLA, March 2008.
3. (Invited) *Searches for New Physics with Underground Xenon Detectors*, Departmental Colloquium, Texas A&M University, January 2008.
4. (Invited) *Dark matter, neutrinos and Xenon*, High energy physics seminar, Northwestern University, January 2008.
5. (Invited) *Underground Searches for SUSY Dark Matter: XENON10 and beyond*, Inaugural Conference of Institute for Gravitation and the Cosmos, Penn State University, August, 2007.
6. (Invited) *First Results from the XENON10 Experiment at Gran Sasso Lab*, SLAC experimental seminar, Stanford Linear Accelerator Center, CA, June 19, 2007.
7. *Liquid Xenon Scintillator for Dark Matter Detection*, IEEE - 9th International conference on inorganic scintillators and their applications, Winston-Salem, NC, USA, June 2007.
8. *Calibrating the XENON10 Detector with Activated Xenon*, APS April meeting, Jacksonville, FL, Apr., 2007.
9. (Invited) *Direct Dark Matter Searches with CDMS and XENON*, The 36th COSPAR Assembly, Beijing, China, July 16-23, 2006.

Collaborators Within the Past Two Years

- Elena Aprile (Ph.D. thesis advisor), Columbia University
- Daniel McKinsey (postdoc advisor), Yale University
- Laura Baudis, University of Zürich, Switzerland
- Katsushi Arisaka & Hanguo Wang, University of California at Los Angeles
- Uwe Oberlack, Rice University
- Francesco Arneodo, Gran Sasso National Laboratory (LNGS), Italy
- Jose A. Matias Lopes, University of Coimbra, Portugal
- Masaki Yamashita, University of Tokyo, Japan
- Richard Gaitskell, Brown University
- Tom Shutt, Case Western Reserve University