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Nota di contenuto	Introduction, history and theory. Early years of high energy neutrino physics in cosmic rays and neutrino astronomy (1957-1962) / I. Zheleznykh. Extremely energetic cosmic neutrinos: opportunities for astrophysics, particle physics, and cosmology / A. Ringwald. Comparison of GZK neutrino flux calculations* / D. Seckel et al. Investigation of event rates for different detector arrays and various extremely high energy models / J. K. Becker and W. Rhode (presented by J. K. Becker) -- Target material properties. Measurement of attenuation length for radio wave in natural rock salt samples concerning ultra high energy neutrino detection / M. Chiba et al. (presented by M. Chiba). Acoustic wave propagation in ice and salt* / B. Price. Experience on acoustic wave propagation in rock salt in the frequency range 1-100 kHz and conclusions with respect to the feasibility of a rock salt dome as neutrino detector / J. Eisenblatter et al. (presented by G. Manthei). Radio signals from photon beams in sand and salt / D. Williams et al. (presented by D. Williams). Broadband

analysis of Askaryan pulses / P. Mioinovic -- Simulation and propagation of signals. Hybrid scheme of simulation of electron-photon and electron-hadron cascades in dense medium at ultra-high energies / L. G. Dedenko et al. (presented by L. G. Dedenko). Structure function of excess charge in rock salt / Y. Watanabe et al. (presented by Y. Watanabe). Simulations of radio emission from electromagnetic showers in dense media / J. Alvarez-Muniz et al. (presented by J. Alvarez-Muniz). Monte Carlo simulations of radio emission from cosmic ray air showers / T. Huege and H. Falcke (presented by T. Huege). Simulation of radio signals from 1-10 TeV air showers using EGSnrc / R. Engel et al. (presented by A. A. Konstantinov) -- Signal processing and background reduction. Scaling of Askaryan pulses / D. Seckel. Signal processing for acoustic neutrino detection in water, ice and salt / S. Danaher. Experience from SAUND* / J. Vandenbroucke. An analysis approach to acoustic detection of extensive atmospheric showers / D. Zaborov -- Sensors and transmitters. Development of acoustic sensors for the ANTARES experiment / C. Naumann et al. (presented by C. Naumann). Measurements and simulation studies of Piezoceramics for acoustic particle detection / K. Salomon et al. Fiber laser hydrophones as pressure sensors / P. E. Bagnoli et al. (presented by C. Trono). Development of glaciophones and acoustic transmitters for ice / S. Boser et al. (presented by S. Boser). Preliminary results on hydrophones calibration with proton beam / A. Capone and G. de Bonis (presented by G. de Bonis) -- Experimental results I (acoustic). High frequency noise in Lake Baikal as a background for the acoustic detection of high energy neutrinos / V. M. Aynutdinov et al. (presented by N. M. Budnev). ITEP investigation of acoustic phenomena from high energy particles / V. S. Demidov et al. (presented by V. Lyashuk). Testing thermo-acoustic sound generation in water with proton and laser beams / K. Graf et al. (presented by K. Graf). Results from the SAUND I experiment* / J. Vandenbroucke. The NEMO acoustic test facility / G. Riccobene. First activities in acoustic detection of particles in UPV / M. Ardid et al. (presented by M. Ardid) -- Experimental results II (Cherenkov Radio). The upper limit to the EHE neutrino flux from observations of the moon with Kalyazin radio telescope / R. D. Dagkesamanskii et al. (presented by R. D. Dagkesamanskii). Using the Westerbork Radio Observatory to detect UHE cosmic particles interacting on the moon / J. Bacelar et al. (presented by J. Bacelar). Updated limits on the Ultra-High Energy (UHE) neutrino flux from the RICE experiment / Kravchenko et al. (presented by D. Besson). The ANITA cosmogenic neutrino experiment / P. W. Gorham et al. (presented by P. Mioinovic). Measuring the neutrino-nucleon cross section with SaSA / A. Connolly -- Experimental results III (Air Shower Radio). Radio detection of cosmic rays with LOPES / A. Horneffer et al. (presented by H. Falcke and A. Horneffer). Combined LOPES and KASCADE-GRANDE data analysis / A. Haungs et al. (presented by A. Haungs). Absolute calibration of the LOPES antenna system / S. Nehls et al. (presented by S. Nehls). CODALEMA: a cosmic ray air shower radio detection experiment / D. Ardouin et al. (presented by R. Dallier) -- Future projects I. The converted hydroacoustic array "MG-10M"- a basic module for a deep water neutrino-telescope / Y. Karlik and V. Svet (presented by V. Svet). A device for detection of acoustic signals from super high energy neutrinos / V. M. Aynutdinov et al. (presented by L. V. Pan'kov). The UK-ACoRNE group: present projects and future plans* / S. Danaher. ACoRNE simulation work / J. Perkin. Design considerations and sensitivity estimates for an acoustic neutrino detector / T. Karg et al. (presented by T. Karg) -- Future projects II. Study of acoustic ultra-high energy neutrino detection Phase II / N.

Kurahashi. SPATS-a South Pole acoustic test setup / S. Boser et al. (presented by S. Boser). Integration of acoustic detection equipment into ANTARES / R. Lahmann et al. (presented by R. Lahmann). Overview of the LORD experiment (Lunar Orbital Radio Detector) / V. A. Chechin et al. (presented by V. A. Tsarev). Concept of the LORD experiment / V. A. Chechin et al. (presented by V. A. Chechin). Advanced detection methods of radio signals from cosmic rays for KASCADE Grande and Auder / H. Gemmeke et al. (presented by H. Gemmeke) -- Future projects III. Neutrino detection in salt domes under LOFAR / A. M. van den Berg. Introduction to the SaLSA, a salt dome shower array as a GZK neutrino observatory (abstract only) / D. Saltzberg. Neutrino flavor identification in SaLSA / P. Miocpinovic. Simulation of a hybrid optical/radio/acoustic extension to icecube for EHE neutrino detection / J. A. Vandembroucke et al. (presented by J. A. Vandembroucke) -- Round table discussion. ARENA round table discussion summary / R. Nahnauer -- Conference summary. ARENA 2005 Conference summary / J. G. Learned. ARENA workshop pictures. List of participants.
*Contribution not received.

Sommario/riassunto

The ARENA Workshop in Zeuthen was the first to combine extensively the fields of acoustic and radio detection techniques for high-energetic particle cascades from cosmic neutrino interactions. The articles in this volume comprise the latest research work which was presented by over 50 speakers from 10 countries. The wide coverage includes: theoretical predictions on fluxes and the potentialities of new techniques, theoretical and experimental results on target material properties, the fundamentals of interactions and cascade simulation, and current experimental results and the most recent neutrino flux limits. The book also considers future plans and experiments for both radio and acoustic methods with the aim of giving the reader an up-to-date overview of this rapidly developing field.
