

**XVIII Workshop on Neutrino Telescopes  
Palazzo Franchetti – Istituto Veneto  
Venice, 18-22 March 2019**

**Poster Session  
Submission of Abstract**

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Title of the Poster: Lorentz Invariance Violating Theories and impact on Neutrino Oscillations

**Abstract Text:** (no longer than 800 characters)

Lorentz invariance seems a fundamental symmetry of nature. Nevertheless, experiments are testing its validity and theories are considering the possibility of small violations of this invariance, induced at high energies by quantum effects connected with space-time structure. Since the '99 Coleman-Glashow's work, the possibility of Lorentz Invariance Violation (LIV) in neutrino physics has been studied. In the model we developed LIV is introduced with a "geometric origin", starting from modified dispersion relations. In our extended version of the Standard Model, the neutrino flavor transition oscillation probabilities are modified by additional LIV terms, potentially relevant for high energy neutrinos. The impact of these corrections for different neutrino experiments is widely analyzed here.

**Summary:** (no longer than 400 characters. Insert a tag, key word, topic, etc.)  
Search for Lorentz Invariance violation (LIV). Development of a model with LIV in Finsler geometry, from modified dispersion relations and different maximum velocities for different particle species. LIV impact on neutrino propagation and neutrino oscillation probabilities. Possible tests of LIV with high energy neutrino experiments (atmospheric neutrinos, neutrino telescopes, JUNO, etc.).

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Kindly follow the instructions above and send the abstract (.pdf file) to <mailto:salente@pd.infn.it> by February 22nd 2019. Response will be sent to the submitter's e-mail address indicated above, by March 1<sup>st</sup>. Posters will be exhibited all week long at the workshop site. Discussion will take place on Thursday March 21st, during the Poster Party. At least one author must be available for "question-answer" time. Best 3 posters will be awarded on Friday 22nd, during the closing plenary session of the workshop.