

IAF SPACE EXPLORATION SYMPOSIUM (A3)
Moon Exploration – Part 2 (2B)

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PROJECT TRAILER: TANDEM OF ROVER AND ASSOCIATED WAIN FOR LUNAR EXTENDED
ROAMING**Abstract**

TRAILER is a two-year project to test a novel architecture of robotic cooperation based on a tandem of two rovers for lunar surface exploration missions. International Space Station partners are working on the development of the lunar GATEWAY which must be considered as a Base Camp that will serve to set-up missions on the surface of the Moon. Astronauts and robots will work together to prepare the coming era of space exploration with missions to the lunar South Pole and other locations: robotic explorers will search for ISRU elements that could support a human presence on the surface. These scouts will be operated either from Earth or from GATEWAY; and they will need to perform certain tasks autonomously. The main objective of the TRAILER activity is to develop a rover system consisting of i) An agile and powerful rover (TRACTOR) equipped with high performance locomotion and navigation, local wireless transceiver, short-term energy storage, sample acquisition system, and ii) An active trailer (WAIN) equipped with limited locomotion and navigation, high power generation or storage and local wireless network that could assure lunar-earth communication and host a scientific laboratory for sample collection and analysis. The TRAILER activity is under a contract by ESA and led by the Marseille-based company COMEX that develops the “WAIN”. The German Research Center for Artificial Intelligence

Robotics Innovation Center (DFKI RIC) in Germany is responsible for simulations and development of the second robot, the “TRACTOR”. LIQUIFER Systems Group in Austria defines the mission requirements and operational scenarios of the robotic tandem and simulations. The TRAILER system will be tested in test facilities at the partner organizations in France and Germany. The latest status in this 2.5-year project will be presented in the paper.