

## Exo-Planetary Energetic Neutral Atoms

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Energetic Neutral Atoms (ENAs) are the result of charge exchange between plasma ions and a neutral gas present at the same location. Observations of such ENAs with suitable ENA instrumentation allows for remote sensing, and imaging, of the plasma populations to record global distributions of plasma populations around a planetary object. ENAs were observed at all planets in our solar system where ENA instrumentation was available, e.g. Earth, Mars, Venus, Jupiter, Saturn and their moons. Thus, it can safely be expected that there are ENAs in the vicinity of exo-planets. Because of the distance to these objects ENAs cannot be measured directly, but have to be inferred from spectroscopic observations. For HD 209458b an ENAs population was used to explain the details of the Lyman-alpha absorption line recorded for that planet for the first time. In the meanwhile ENAs have been identified at other exo-planets as well. Interpretation of these absorption lines is complicated and needs an extensive model effort. However, if an ENA contribution can be inferred from the observations, its interpretation gives clues about the magnetosphere of the exo-planet (e.g., its magnetic field ), and its interaction with the stellar wind.