

## An ENA analyzer onboard MMO Mercury orbiter

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We are developing an energetic neutral atom analyzer which will be onboard BepiColombo MMO. ENAs can provide information of their generation region (for example, particle energy and mass) because of their electrically neutral nature. Under the Mercury circumstances, ENAs are thought to be generated by (1) reflections of solar wind / magnetospheric ions on Mercury surface, (2) sputterings due to collisions between the surface components and the solar wind / magnetospheric ions, and (3) charge-exchange collisions between energetic ions and thermal neutrals. For the mechanisms (1) and (2), the generation location is surface of Mercury. It means there is no ambiguity of line-of-sight thickness of generation region.

Incoming ENAs into the instrument are ionized in order to apply electrostatic energy analysis and time-of-flight (TOF) analysis. Then, particle mass can be deduced with energy and velocity which is directly provided by the TOF analysis. Two-dimensional ENA images will be available by using spacecraft spin motion.

Development status will be reported.