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First observation of energetic neutral atoms in the Venus environment

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The ASPERA-4 instrument on board the Venus Express spacecraft offers for the first time the possibility to directly measure the emission of energetic neutral atoms (ENAs) in the vicinity of Venus. With the neutral particle detector of ASPERA-4 a distinct signal of hydrogen ENAs has been detected on several occasions when the spacecraft was inside the Venus eclipse. The ENA signal is observed as a narrow tailward stream, coming from a small spot around the subsolar point region. The ENA emission reaches several $10^5 \text{ cm}^{-2} \text{ sr}^{-1} \text{ s}^{-1}$, which is consistent with present theories of the plasma and neutral particle distributions around Venus.