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Evidence for External Reconnection Between an Erupting Mini-filament and Ambient Loops Observed by Solar Orbiter/EUI

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Mini-filament eruptions are one of the most common small-scale transients in the solar atmosphere. However, their eruption mechanisms are still not understood thoroughly. Here, with a combination of 174 Å images of high spatio-temporal resolution taken by the Extreme Ultraviolet Imager on board Solar Orbiter and images of the Atmospheric Imaging Assembly on board Solar Dynamics Observatory, we present a detailed investigation of an erupting mini-filament over a weak magnetic field region on 2022 March 4. It is clearly observed that, as the mini-filament quickly ascends, two ribbons appear underneath it. Subsequently, when the erupting mini-filament interacts with the outer ambient loops, some dark materials blow out, forming a blowout jet characterized by a widening spire. At the same time, multiple small bright blobs of size 1–2 Mm appear at the interaction region and propagate along the post-eruption loops towards the footpoints of the erupting fluxes at a speed of 100 km s^{-1} , as well as giving rise to a semi-circular brightening. These features indicate that the mini-filament eruption first undergoes the internal and then external reconnection, the latter of which mainly transfers mass and magnetic flux of the erupting mini-filament to the ambient corona.