

The topographical diagnostics of Turbulent Reconnection

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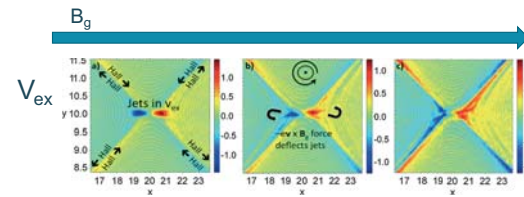
AIDA H2020 Project

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Acknowledgments

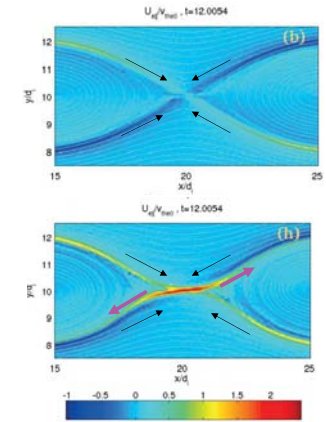


Setup and effect of guide field



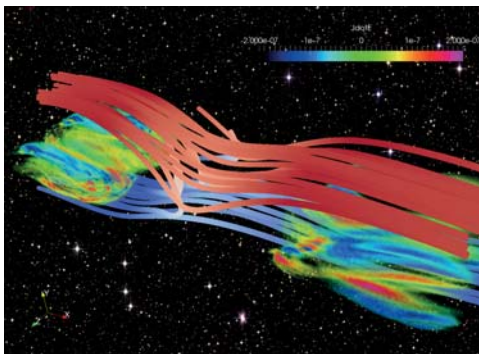
- Increasing B_g deflects the outflow toward the separatrices due to the Lorentz force ($F_y = V_x \times B_g$).
- This changes radically the topography of reconnection

Flow along the separatrices



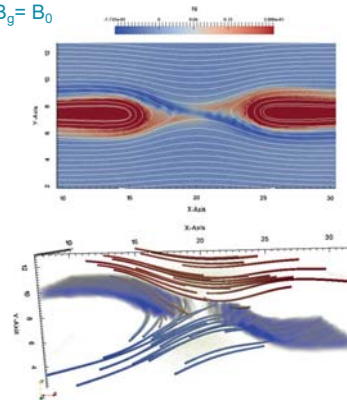
Nature of the instabilities in the different regions

$B_g = 0.1 B_0$



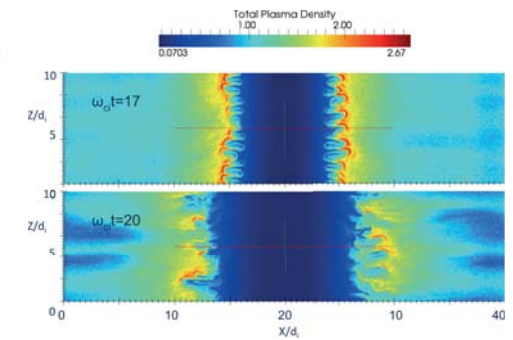
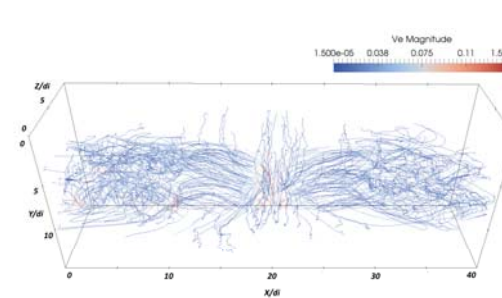
Drift and Interchange

$B_g = B_0$

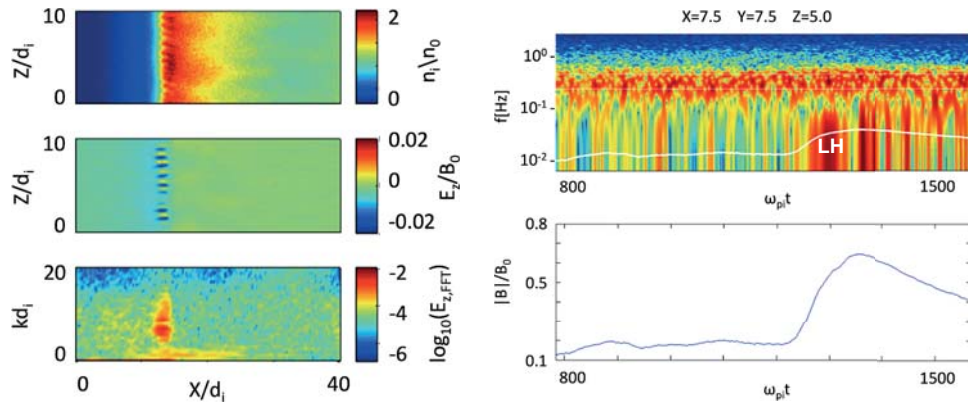


Drift-tearing and Kelvin-Helmholtz

Nature of the fluctuations - DF

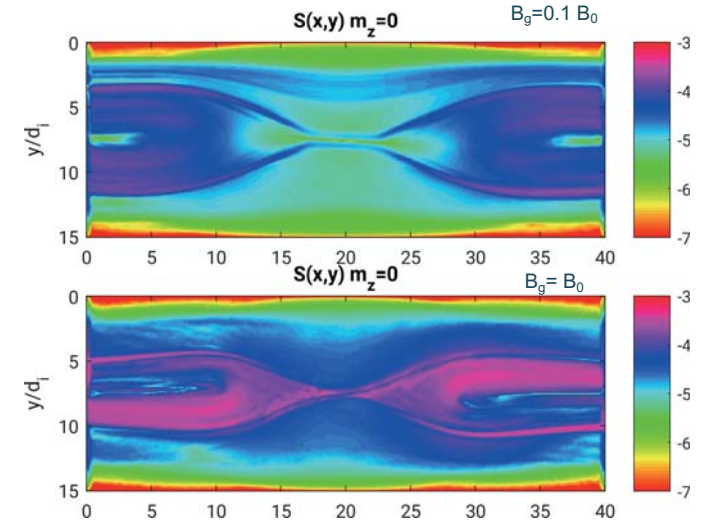


Lower-hybrid-range instability

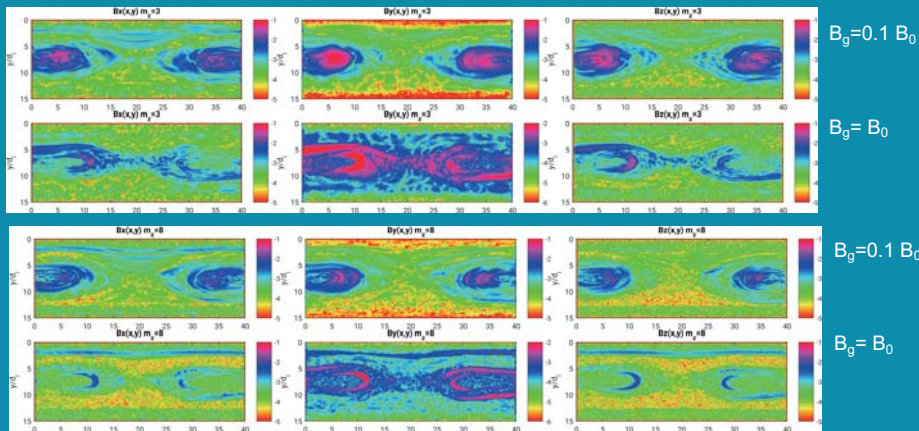


Fourier modes in z for the Poynting Flux

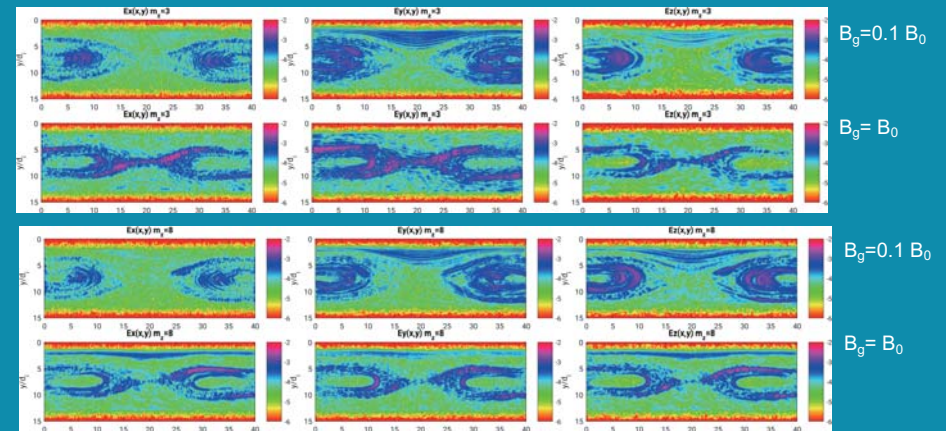
- Top: $B_g=0.1 B_0$
- Bottom: $B_g=B_0$
- Separatrix: very active at large B_g
- DF: active at all B_g but in different ways
- High m present in both regions



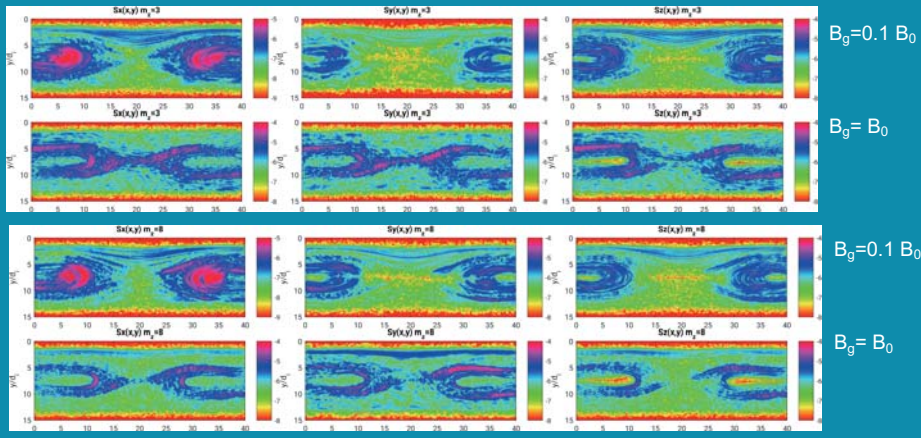
Magnetic Field



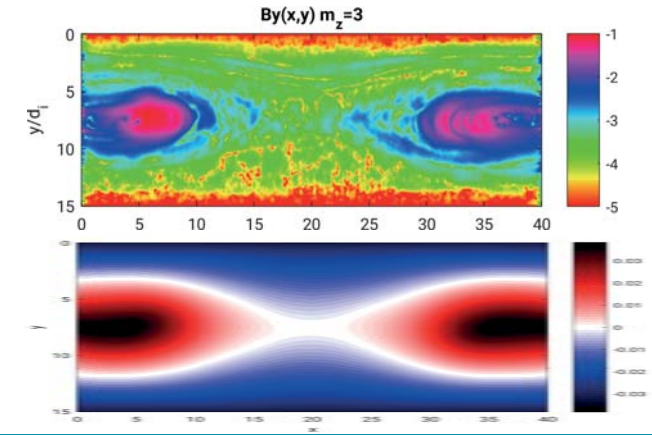
Electric Field



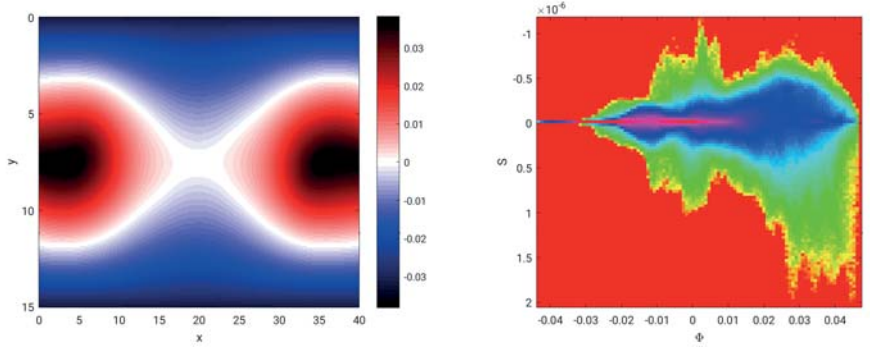
Poynting Flux



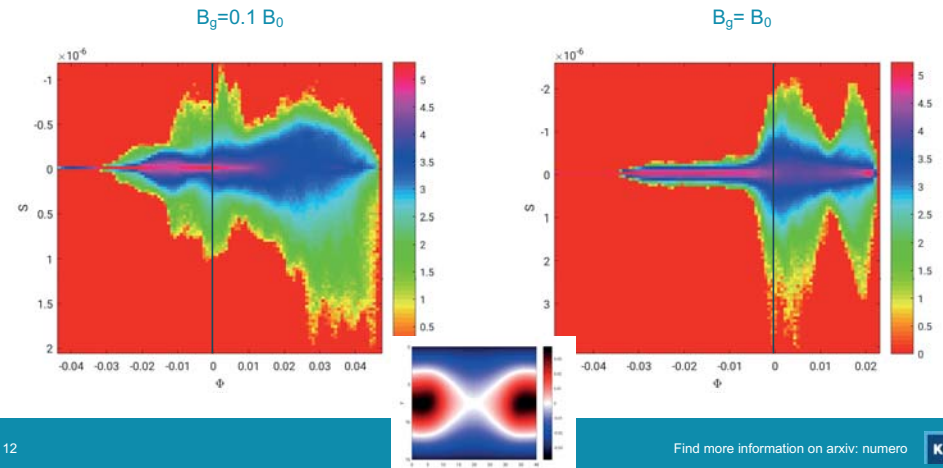
Using the Magnetic Flux function as topographic indicator



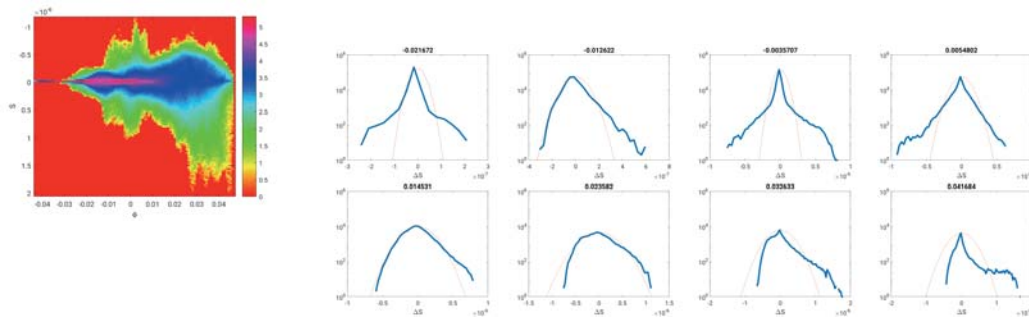
Topographic Fluctuation Analysis



Fluctuations at different Bg : Poynting flux



$B_g=0.1B_0$ Poynting flux fluctuations

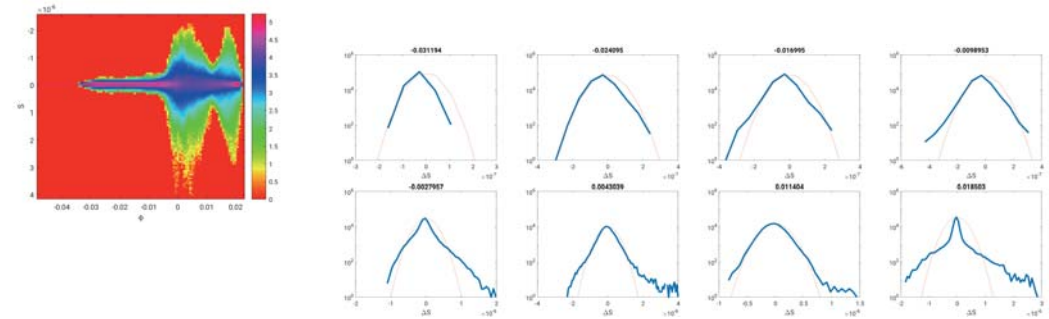


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$B_g=0.1B_0$ Poynting flux fluctuations

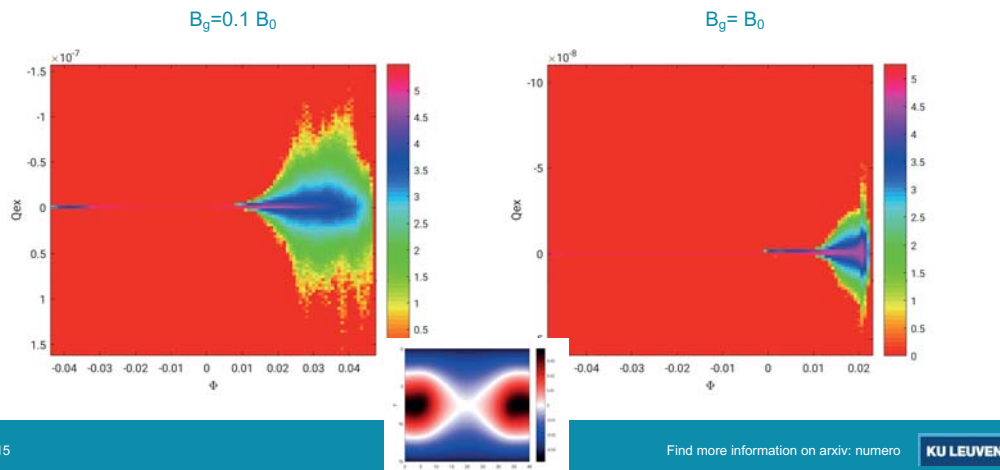


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Fluctuations at different B_g : Electron Energy flux

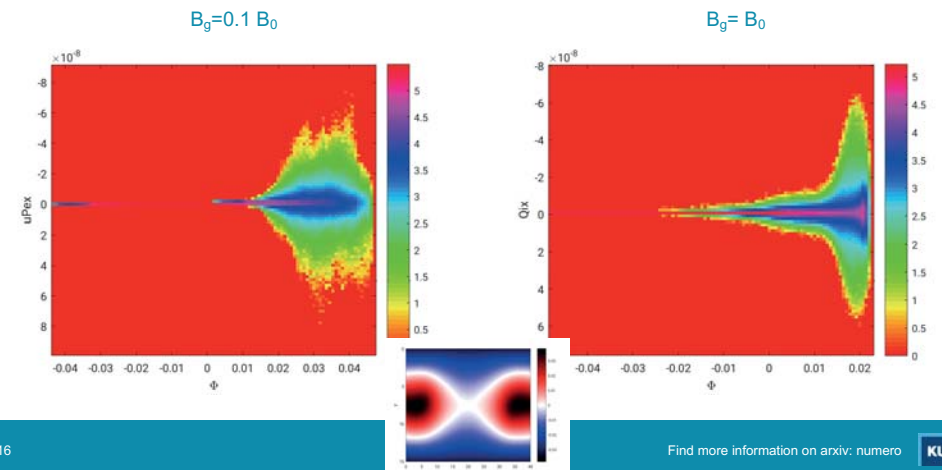


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Fluctuations at different B_g : work of the pressure tensor



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