

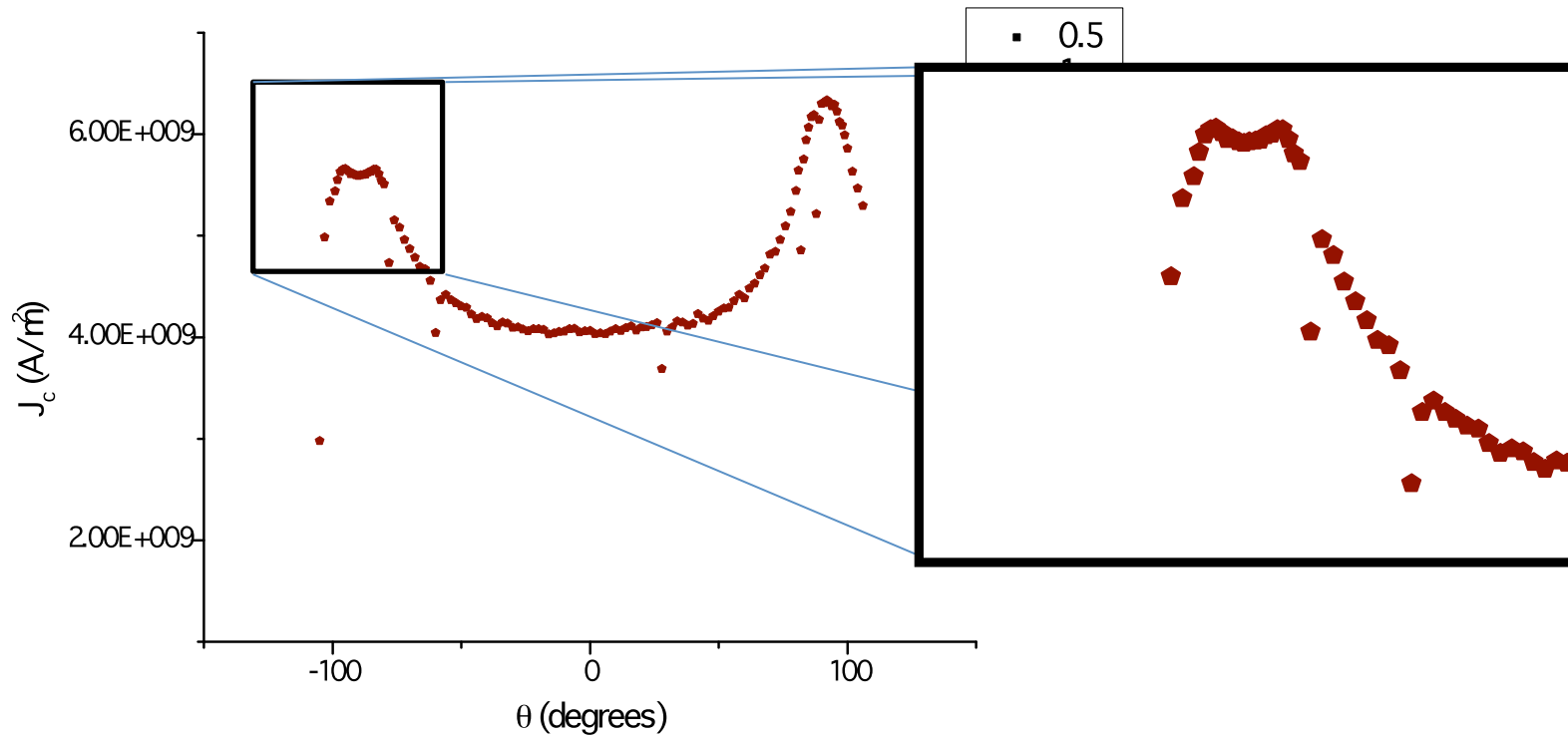
Vortex diode effect in pinning enhanced YBCO

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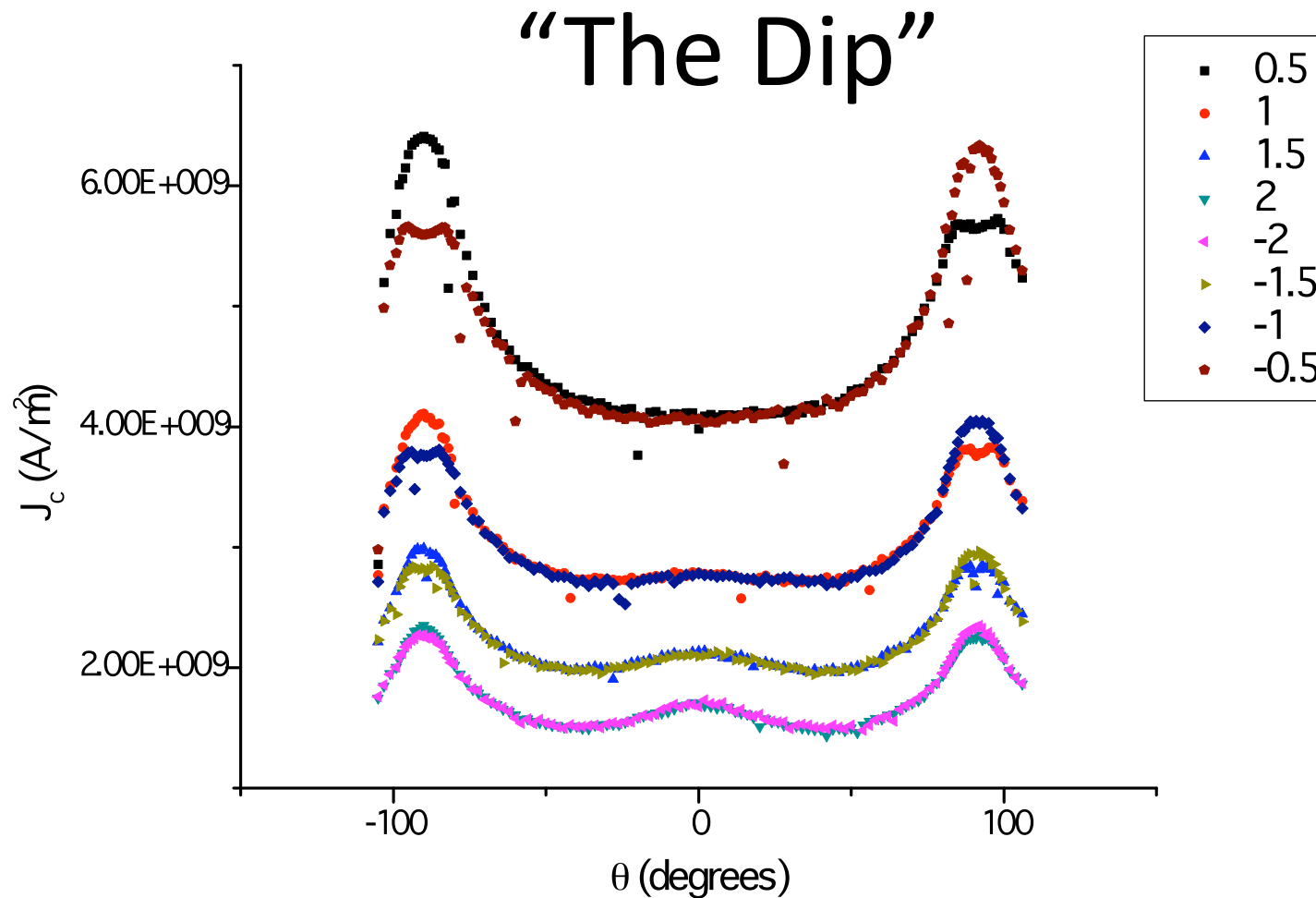
MacManus-Driscoll

J. Lee and H.Wang

“The Dip”

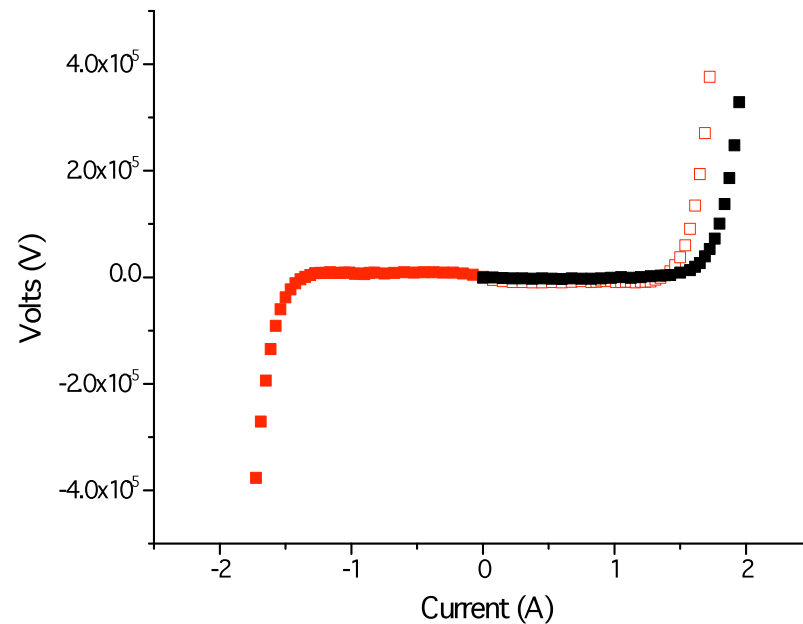


- Seen in BZO doped, pyrochlore doped and ion size variance films



Only seen for one of the intrinsic peaks!
Reverse field, dip position swaps.....

Diode effect



- If we sit with field in plane and perform a bipolar IV, get a rather poor superconducting diode

What's going on

- Either triangular pins or surface barrier effect. I_c is good, not due to a poor pinning channel
- We think the two interfaces are different, confirmed in TEM, thick strained layer found at “easier” interface.
- Similar behaviour is seen in isotropic LTC films, can turn on and off pinning with B along film surface.
- Could enhance this effect, high current superconducting “devices” using CC substrates
- Also means that looking at only one intrinsic peak, or using a commutating measurement isn't a good idea!

