VLT NIR and optical images of hot spots in radio galaxies

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Hot spots at the ends of the lobes of powerful radio galaxies mark the "working surface" of supersonic jets in which their kinetic energy is believed to be dissipated into the acceleration of relativistic particles. The mere fact that optical hot spot emission is detected at all in large radio galaxies directly proves that relativistic electrons in the radio hot spots are accelerated by Fermi-I acceleration processes in a strong shock. The search for optical emission from hot spots has a long history but up to now only very few hot spots with optical synchrotron radiation have been detected.

We have embarked on a project to search for optical hot spot emission with the VLT. We present the first results of ISAAC NIR and FORSI optical imaging which detected optical synchrotron emission with a success rate of some 70% (6/9). We display the high-resolution radio maps of the hot spots in our sample along with their NIR/optical counterparts. The optical images have been obtained with a typical seeing of $< 0\farcs6$.