PAH in the bright infrared supernova remnant G349.7+0.2

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We present the results of infrared observations of the bright supernova remnant (SNR) G349.7+0.2. It is one of the brightest SNRs in our Galaxy: its radio mean-surface-brightness is the forth highest among the known Galactic SNRs after the two historical SNRs (Cas A and Crab) and Sgr A East at the Galactic center. G349.7+0.2 is also prominent in infrared images taken by recent Galactic plane surveys from near- to far-infrared wavelengths. Therefore, G349.7+0.2 is a good example to study the detailed physics of dust and polycyclic aromatic hydrocarbon (PAH) in SNR. Using AKARI 2.5-5 μm spectroscopy, we have detected various features. We detected 3.3 μm PAH emission feature as well as strong emission lines of molecular hydrogen (H_2) and hydrogen (H) recombination. We also detected CO_2 absorption at 4.5 μm. On the other hand, we have performed several narrow-band imaging observations in infrared wavebands. First, we obtained the high-resolution Subaru/IRCS 3.3 μm PAH narrow-band image, showing PAH distribution associated with the SNR. This is the first 3.3 μm PAH imaging of Galactic SNRs, where we can resolve the structure in detail. Second, we got UKIRT 1.64 μm [Fe II] and 2.12 μm H_2 narrow-band images. The former shows the distribution of ionized gas heated by SNR shock, and the latter does the distribution of interacting dense molecular cloud. In this presentation, I will discuss the distribution of the detected features with relation to the processing of dust and PAH in SNR.