

The infrared beamline BL43IR at SPring-8: present status and recent studies

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The infrared beamline BL43IR at SPring-8 has been in operation since 2000. The high brilliance property of infrared synchrotron radiation is utilized by a microspectroscopy measurement at BL43IR [1]. In this study, we present the current status and recent studies.

BL43IR has three microspectroscopy stations, i.e., a high spatial resolution microscope, a long working distance microscope and a magneto-optical microscope. In addition, in order to overcome the diffraction limit, we are developing a near-field spectroscopy apparatus. Fig. 1 shows end stations at BL43IR.

At BL43IR, various fields of studies have been conducted. Physics researches have been the most productive. The representative activities are, for example, high pressure experiments of strongly correlated electron system [2], microspectroscopy studies of molecular organic conductors [3] and microspectroscopy experiments under multi-extreme conditions [4]. Recently, studies in other fields than physics are increasing. A research to verify the effect of a hair treatment agent was done as an industrial use. In the study, a mapping image of a sliced hair was measured to identify the penetration of the functional components of the treatment agent into the hair [5]. One of the archaeological studies related to the identification of a kind of excavated textile fibers. New procedure was suggested to identify the bast fibers by analyzing the polarization angle dependence of spectral pattern [6]. One of a polymer science studies was conducted to investigate a wetting behaviour of a polyelectrolyte brush surface. By infrared microspectroscopy, the presence of the water was confirmed even outside the water droplet, and the wetting mechanism was discussed [7].

SPring-8 covers wide energy range and various fields of researches have been conducted at the many beamlines. We are currently trying to promote utilizations of the multiple synchrotron beamlines, in order to encourage more use of BL43IR.

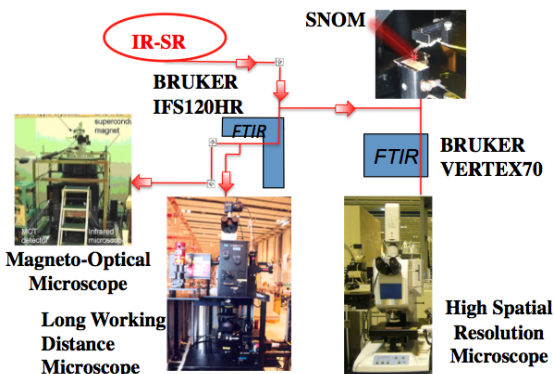


Fig.1 End stations at BL43IR.

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