

On the Generalized Aurora CT

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This research aims at further development of aurora (computed) tomography (ACT) we have been working these ten years or more on Swedish ALIS (Aurora Large Imaging System) in Kiruna region. Now Japanese REIMEI satellite is orbiting and taking aurora monochromatic images from topside and lateral side of aurora and hence less constrained, e.g., time-dependent reconstruction of aurora 3D luminosity has become possible in this essentially ill-posed inverse problem. In addition to these, here we propose a Generalized Aurora CT (G-ACT) which could make the most of available data relevant to aurora particle precipitation and excitation. These include time evolution of aurora emission, electron density enhancement, imaging riometer ionospheric absorption and all other evidences relevant to precipitating particles. The project is in line with umbrella program entitled 'Function and Induction' of Transdisciplinary Research Integration Center of our Research Organization of Information and Systems.