

R007-04

Zoom meeting A : 11/1 AM2 (10:45-12:30)  
10:45-11:00

### 3年間の Crab pulsar 観測における DM 探査を用いた太陽風密度構造の測定

#前田 龍哉<sup>1)</sup>, 徳丸 宗利<sup>2)</sup>, 俵 海人<sup>2)</sup>, 寺澤 敏夫<sup>3)</sup>, 岳藤 一宏<sup>4)</sup>

<sup>1)</sup>名大・理・宇地研, <sup>2)</sup>名大 ISEE, <sup>3)</sup>東大・宇宙線研, <sup>4)</sup>NICT 鹿島

### Measurement of solar wind density distribution using DM survey of Crab pulsar observation for 3 years (2018-2020)

#Ryuya Maeda<sup>1)</sup>, Munetoshi Tokumaru<sup>2)</sup>, Kaito Tawara<sup>2)</sup>, Toshio Terasawa<sup>3)</sup>, Kazuhiro Takafuji<sup>4)</sup>

<sup>1)</sup>ISEE, Nagoya Univ., <sup>2)</sup>ISEE, Nagoya Univ., <sup>3)</sup>ICRR, Univ. Tokyo, <sup>4)</sup>KSTC, NICT

We estimated the plasma density of solar wind (SW) from observations of Crab pulsar when the line-of-sight (LOS) of the pulsar approaches the sun. Crab pulsar is a neutron star that emits pulsed radiation with a period of about 33 milliseconds. This radiation is affected by intervening plasma, such as interstellar medium and SW, resulting in signal propagation delays. This delay depends on frequency, and the magnitude of frequency dispersion is called dispersion measures (DM). DM provides an integral of the plasma density on the LOS from the pulsar to the observer. The LOS of Crab pulsar approaches the sun by  $\sim 5R_{\odot}$  ( $R_{\odot}$ : solar radius) in every mid-June. Observations at this distance range are important for understanding SW acceleration. Previous observations have shown a rise in DM as the LOS of Crab pulsar approaches the sun. We have made observation of Crab pulsar using 327MHz radio telescope (SWIFT) since 2018 at Toyokawa. The observation time for a given day was usually 6 minutes, and 8 minutes when LOS approaches the sun in 2019 and 2020. Focusing on strong pulses ( $\text{SNR} > 15$ ), we determine the DM which optimize intensity height of the pulse. Based on the obtained values, we investigated the relationship between the variation of DM value and the distance from the sun. The 2019 analysis shows that the density distribution tends to increase sharply near the sun. Similar observations was made in 2020, and analysis is underway. We will present the results of DM value for 3 years including analysis results for 2020 in this meeting.