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An Interpretation of the Solar Flare Ocurred on 17 may 2012

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We study temporal, spectral, and spatial evolution of a solar flare (M5.1) that erupted on 17 May 2012 from active region 11476. Investigation reveals that the flare satisfies standard-dynamical scenario such as the X-ray thermal emission components (6 – 12 keV) lay at the loop-top near the possible reconnection area whereas X-ray nonthermal emission components (25 – 50 keV) were from two laterally expanding foot-points. The topology structure demonstrates that microwave solar radio flux density (RFD) components originated from the positions around/above foot-points. Consequently propagation-delays between HXR and RFD components occurred and their onset/peak times differed. Spatial evolution of the thermal components demonstrates that the brighter region evolved through expansion and compression within a range of volume from 1.1x1028 to 2.3x1028 cm3. The peak time (∼01:47 UT) of the flare in terms of soft X-ray (SXR) component (1 – 8 Å) occurred one minute before the first appearance (∼ 01:48 UT) of the coronal mass ejection (CME) when a Type-II radio burst was clearly visible. The decay phase of the SXR component preserved a strong correlation with that of the Type-II burst and with the corresponding decay phase of the RFD components. The thermal energy of the flare was inversely proportional to the propagation time such that the flare energy decreases in the interplanetary medium so that the CME-driven shock becomes the dominant particle accelerator.