

Flares in the sun and star corona

Lu Runbao

Institute of Applied physics and Computational Mathematics,

P.O.Box 8009, Beijing 100088,China

E-mail: Lu_runbao@iapcm.ac.c

Abstract

The problem on solar flare mechanism is still open. On the basis of model of “electron-ion bound state and its introducing of nuclear fusion” it is given that there are two kinds of X-ray emission processes in solar flares: soft X-ray emission with energy $\sim 12.5\text{Kev}$ X-ray (p-e-p), p-e-A⁺ $\sim 25\text{keV}$ X-ray and hard X-ray emission with energy $\sim 25\text{keV}$ (d

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-e-d

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-ray. Meanwhile there are (d,d) fusion in hard X-ray burst events.

On the basis of measurements of X-ray spectrum the author points that X-ray emission from Cyg X-1 (black hole candidate), 4U0115+63 (neutron star), and SN1987A (supernova) may be like it from the solar flare. In the high state of black hole it may correspond to soft X-ray flare, and in the low state it may correspond to hard X-ray flare. In the 4U0115+63 events, it may not be absorption lines at 12Kev and 23Kev, but the emission lines at $\sim 12.5\text{Kev}$ and $\sim 25\text{Kev}$. In the SN1987A, X-ray source comes from p-e-p $\sim 12.5\text{Kev}$ and d

-e-d

$\sim 25\text{Kev}$ and

-ray. The author suspects where so many atoms of

Ni and

Co come from. I think the X-ray spectrum of SN1987A is similar to the X-ray spectrum in solar flare.

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The SGRs are not a kind of unique object or neutron star, they are produced from some star coronal flares like solar flare of 1980 June 7 event. The GRBs are not collapse of massive star or collapse of NS-NS or NS-BH. GRBs are hard X-ray burst on star corona . Observations with RHESSI and Swift provide evidences on “EIBS and IINF” model quantitatively.

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