Contribution ID: **57** Type: **Oral Presentation**

Study of rare modes of ”collinear cluster tri-partition” of 252Cf(sf)

Wednesday, 13 July 2011 11:30 (15 minutes)

<p>In our experiments devoted to studying of a new ternary decay of low excited heavy nuclei called “collinear cluster tri-partition” (CCT) a specific CCT mode was observed based on double magic 132Sn cluster. Pre-scission configuration which presumably gives rise to the mode under discussion can be obtained. The Sn cluster can ”move” as a whole along the cylinder-like configuration that consists of residual nucleons. Two light fragments accompanying this cluster and marked by symbols M1 and M2 were actually detected in previous experiments. The value of M2 lies between 0amu and the difference between the initial mass of 252Cf and the detected fragments. M1 cannot assume any value less than 95amu (deformed magic 95Rb). The question that arises is whether 132Sn can also be changed by double magic 208Pb. This would lead to a new type of lead radioactivity. Searching for such a mode is one of the goals of our forthcoming experiment, which will require better statistics and more precise time-of-flights measurements. Testing of a specially designed setup aimed at addressing and solving these problems is one of our current plans.

Level (Hons, MSc,
   PhD, other)?

Msc

Consider for a student
   award (Yes / No)?

Yes

Would you like to
 submit a short paper
 for the Conference
 Proceedings (Yes / No)?

Yes

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Session Classification: NPRP

Track Classification: Track B - Nuclear, Particle and Radiation Physics