SEARCHING FOR SUPERNOVA NEUTRINOS
WITH DARK MATTER DETECTORS

INTRODUCTION
When the next galactic supernova explosion will occur, conventional water or hydrocarbon detectors will provide a huge statistics on $\nu_e$ events. However, the lack of knowledge about the initial energy distribution and the oscillation mechanism limit us to extract useful information from charged-current events alone [1].

DETECTORS
WIMP dark matter and $0\nu\beta\beta$ detectors are in principle able to detect neutrino-nucleus coherent neutral-current scattering [4, 5]:
- large active mass;
- low threshold;
- good energy resolution;
- low background;
- same kinematics for $\nu$ and dark matter.

CONCLUSIONS
The detection of neutral-current events from the next galactic supernova is an important goal still to be achieved. The dark matter and $0\nu\beta\beta$ detectors have a crucial physics potential in this sense. A fast trigger, provided by a standard supernova detector such as LVD, can help to lower the threshold and improve the sensitivity to this rare signal.

REFERENCES