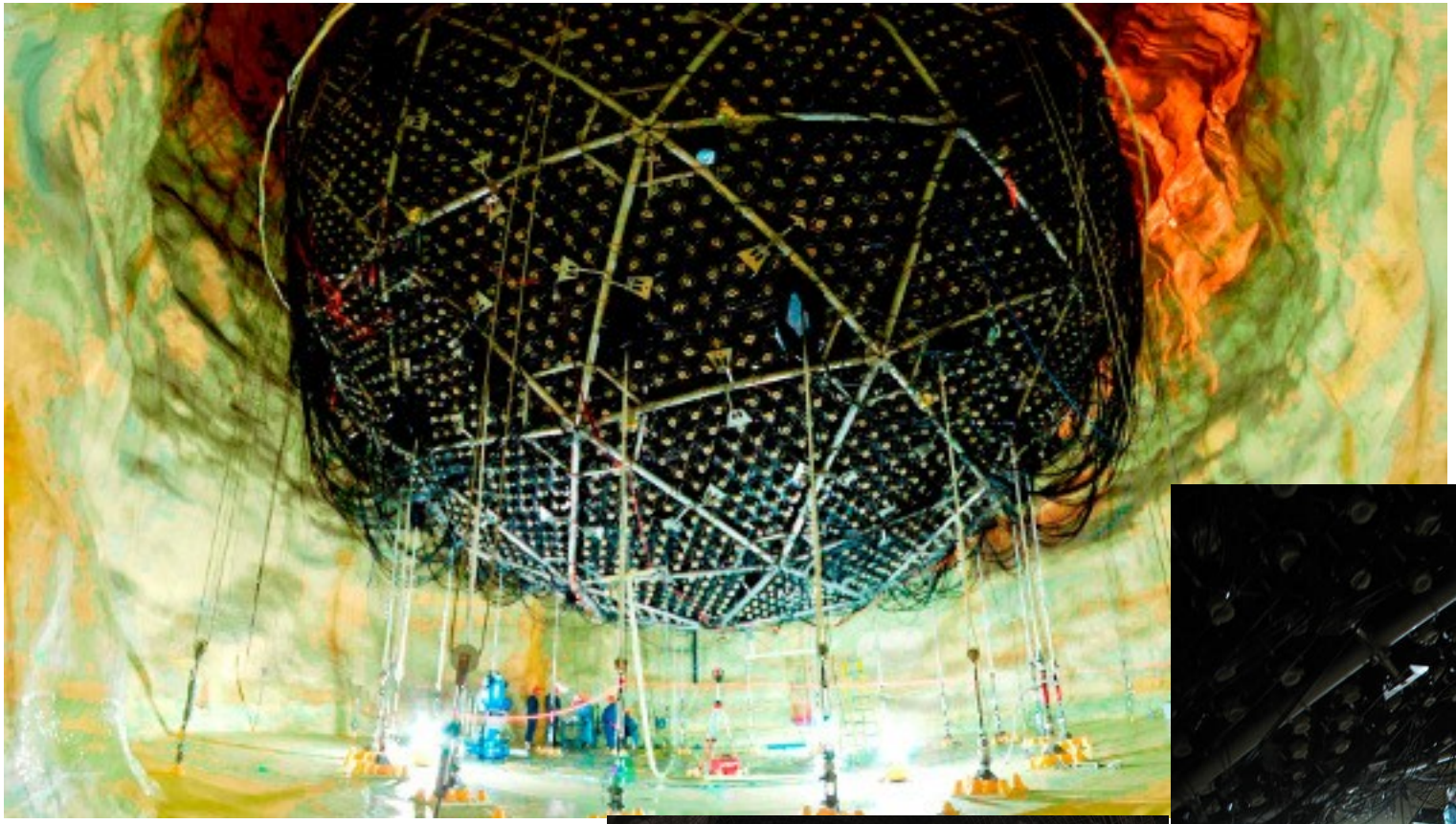
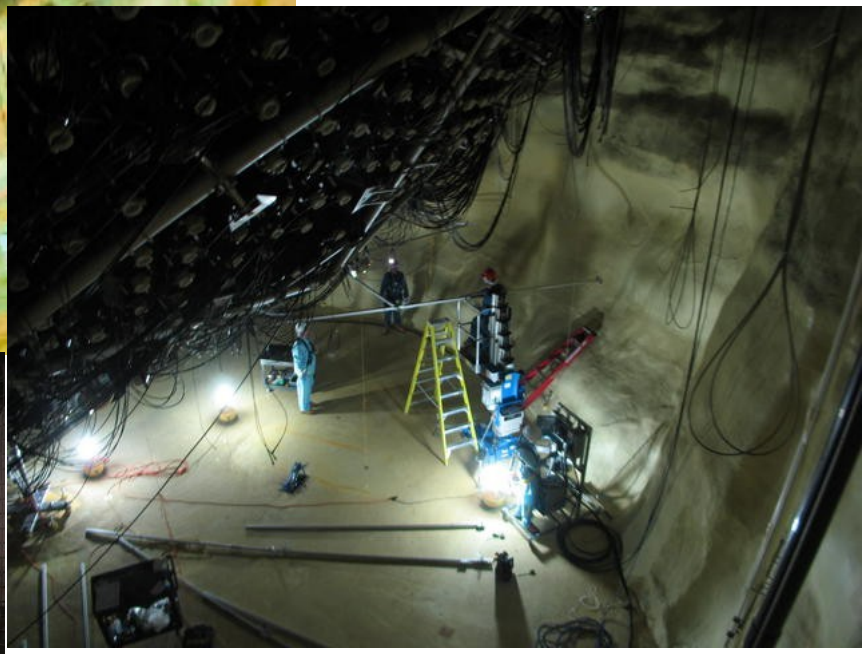
B2
Symmetry and Relativity
Revision 2
TT 2024

SNO → SNO+

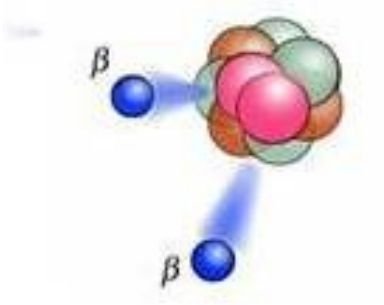


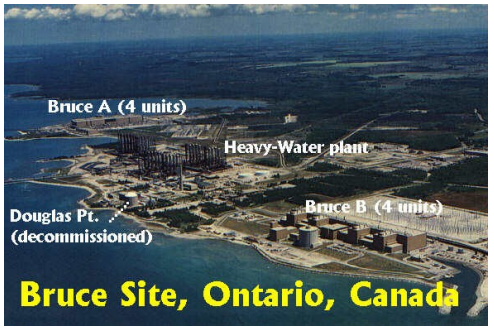


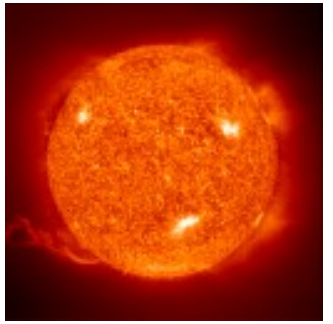

SNO+
August 9, 2022
NASA

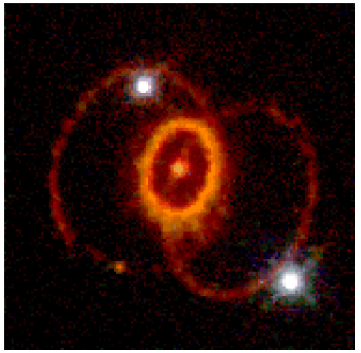
SNO+ Physics

- Neutrinoless double beta decay
- Low-energy solar neutrinos
- Reactor neutrinos
- Geo-neutrinos
- Supernova neutrinos
- Dark matter



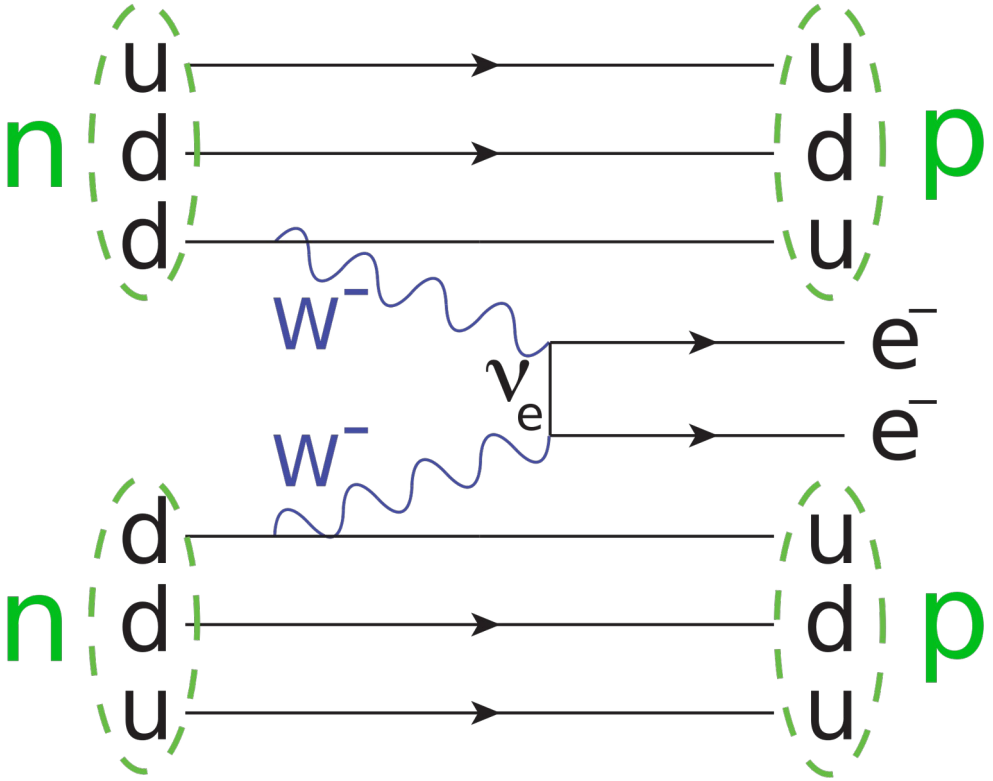


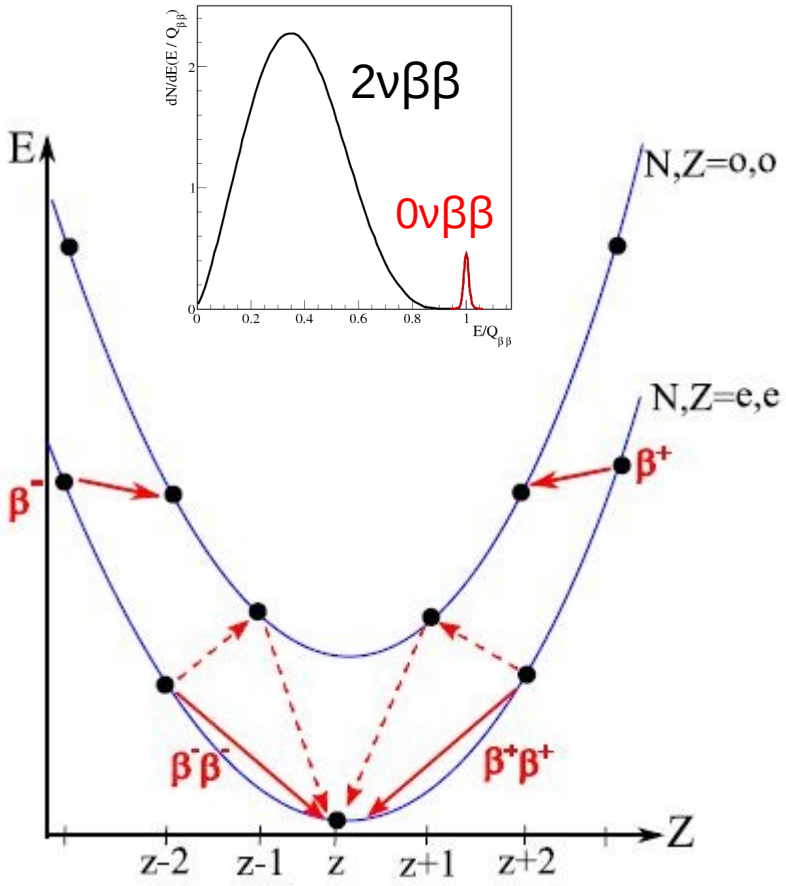




Neutrinoless double beta decay

$$B = a_V A - a_S A^{2/3} - a_C \frac{Z^2}{A^{1/3}} - a_A \frac{(A-2Z)^2}{A} - \delta(A,Z)$$





ββ Isotopes

Bilenky, Giunti
Int J Mod Phys,
A30 (2015) 0001

	% abundance	Q [keV]	T [10^26 y]
48Ca	0.187 ± 0.021	4272.26 ± 4.04	0.6 – 13.3
76Ge	7.73 ± 0.12	2039.061 ± 0.007	1.0 – 8.6
82Se	8.73 ± 0.22	2995.12 ± 2.01	0.3 – 2.2
96Zr	2.80 ± 0.09	3350.37 ± 2.89	0.4 – 2.1
100Mo	9.82 ± 0.31	3034.40 ± 0.17	0.1 – 0.8
110Pd	11.72 ± 0.09	2017.85 ± 0.64	0.3 – 2.3
116Cd	7.49 ± 0.18	2813.50 ± 0.13	0.4 – 1.1
124Sn	5.79 ± 0.05	2286.97 ± 1.53	0.4 – 2.7
128Te	31.74 ± 0.08	865.87 ± 1.31	5.8 – 35.2
130Te	**34.08 ± 0.62**	**2526.97 ± 0.23**	**0.3 – 4.3**
136Xe	8.8573 ± 0.0044	2457.83 ± 0.37	0.4 – 5.2
150Nd	5.638 ± 0.028	3371.38 ± 0.20	0.1 – 1.9

How do these things start?

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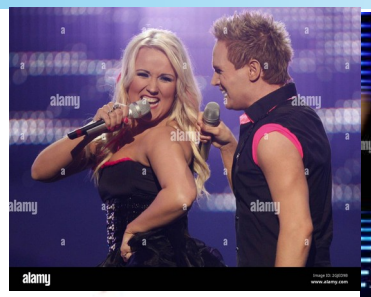
“Shame on us North Americans for not having as much fun as Europeans do...and shame on Europeans for obvious reasons!”

- Mark Chen



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