## $^{9}$Be($^{48}$Ca,$^{35}$Na) 2022Cr03

2022Cr03: $^{35}$Na was produced via the projectile fragmentation of 172.3-MeV/nucleon, 120-pnA $^{48}Ca^{20+}$ primary beam from the FRIB linac impinging on a 8.89mm-thick $^{9}$Be target. The secondary cocktail beam centered around $^{42}$Si was selected by ARIS and implanted into a 5-mm YSO segmented scintillator sandwiched between two plastic scintillator veto detectors. Surrounding the implantation array were 11 HPGe clover detectors and 15 fast-timing $LaBr_3$ detectors, and the VANDLE array of 88 neutron detectors. Two Si PIN detectors and plastic scintillator were placed 1.5 m upstream in the last diagnostic detector box of the beamline. Ions were identified event by event by energy loss in the upstream PIN detector (Z determination) and time of flight between a plastic timing scintillator at the start of stage 3 of the ARIS separator and the timing scintillator in the diagnostic detector box immediately upstream of the implantation detector (A/Q determination) over a flight path of 33.5 m.

### $^{35}$Na Levels

| E(level) | $T_{1/2}$ | Comments |
|---|---|---|
| 0.0 | 2.4 ms *4* | $T_{1/2}$: from fitting the decay curves to a function that considered the decay of the parent, the exponential growth and decay of the daughter(s), potential $\beta$1n and $\beta$2n decay branches, and a constant background. 2022Cr03 original $T_{1/2}$=2.4 ms *3* (stat) *2* (syst). |