The Kapoeta howardite contains abundant noble gases in the dark phases of its brecciated structure, implanted during exposure of the parent body regolith to the solar wind [1-5]. These gases have been studied extensively over the years, most recently by the modern closed-system stepped etching technique [6,7], in efforts to determine the elemental and isotopic composition of the solar wind at the time of regolith exposure. Kapoeta is interesting as well for another aspect of its irradiation history: several investigations, most recently by Rao et al. [8], have shown that the dark, solar wind-irradiated phases contain excesses of spallation-produced Ne above the levels expected to be generated by galactic cosmic rays (GCR) during the meteorite's space exposure age of ~3 Ma. These excesses have been attributed to production by GCR, and by a solar cosmic ray (SCR) flux substantially enhanced over current levels, during an early (~3-6 Ma) irradiation of the parent-body regolith prior to compaction, burial, and ultimate ejection of the Kapoeta object to space [8].

Results of the two recent acid-etch analyses of Kapoeta noble gases at Zürich [6] and Minnesota [7] agree closely, and are important data in estimating the isotopic composition of solar-wind Ne and Ar [9]. We decided to repeat this experiment using stepped pyrolytic extraction, in order to assess the extent of isotopic fractionation favoring lighter isotopes that might be expected to occur as a result of gas evolution by thermal mobilization rather than by room-temperature grain-surface etching. Because the supply of dark-phase material in our Kapoeta sample had been pretty much exhausted, for this analysis 18 small (~0.4 mm) dark phase material in our Kapoeta sample had been pretty much crushed sample of predominantly light-phase material, in the exhaust of the parent-body regolith to space [10].

The dark fragments, while clearly containing a SW component, turned out in fact to be rather gas-poor, and so...
Figure 1: Cumulative $^{20}$Ne release [%]

Figure 2: $^{20}$Ne/$^{22}$Ne and $^{21}$Ne/$^{22}$Ne ratios