Fig. 6 -- Stress-particle velocity (σ-u) plot of BaF_2 as obtained
from the front surface impact experiments. The line marked <111>
denotes the estimated σ-u dependence of β-BaF_2 in <111> direction.
It is identical with σ-u plot for <100> direction. ● steady state
stress realized in the experiments. x the pair of σ, u values
corresponding to minima in the experiments. ■ the steady state
(σ,u) values for <100> shots.

as obtained from the elastic constant data of BaF_2.[21]   In the same
vein, if we plot the magnitude of the stress corresponding to minima
and related particle velocity, these two sets of data form a cusp at
22 to 24 kbars.

    The stress profiles obtained for BaF_2 specimens oriented along
the <100> direction show that a steady state stress is reached
immediately. A plot of stress and particle velocity indicates that
these pairs of points lie along the curve of elastic compression of
the β-phase of BaF_2. A stress profile obtained around 40 kbars for
the <100> orientation is shown in Fig. 7.

Fig. 7 -- Stress-time profile obtained for shock compression of
BaF$_2$ in <100> direction with an impact stress of 40 kbars.

Transmission Experiments

Only three transmission experiments have been performed. A
representative stress profile recorded by a quartz gage at 38 kbars
is shown in Fig. 8. Stress profiles obtained around 20 kbar show
the same character as that shown in Fig. 5. The nature of the pro-
file obtained at higher stresses makes it difficult to analyze in
a straightforward manner, and no further transmission experiments
have been performed as of this date.

Recovery Experiments

Two recovery shots were performed. The details of design and
construction, being of only ancillary interest, are not described
here. Both experiments were performed at 35 to 40 kbars, well
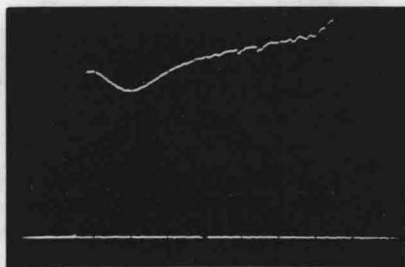above the stress at which the minimum occurs in the stress profile.

Fig. 8 -- Transmitted stress-time profile for BaF$_2$ in <111>
direction with an impact stress of 40 kbars.