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Citation: Review of Scientific Instruments **23**, 328 (1952); doi: 10.1063/1.1746267
View online: http://dx.doi.org/10.1063/1.1746267
View Table of Contents: http://scitation.aip.org/content/aip/journal/rsi/23/7?ver=pdfcov
Published by the AIP Publishing

Upper Level Precession Photography and the Lorentz-Polarization Correction. Part II*

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(Received December 3, 1951)

CHARTS are presented of the Lorentz-polarization correction for upper level precession photographs obtained with a precession angle $\bar{\mu}=30°$. Seven charts, comparable with Waser's Lorentz-polarization correction chart for the zero level, are given at intervals of 0.05 rlu above the zero level, corresponding to a magnification factor $F=5.5$ cm.

In Part I,[1] the Lorentz polarization correction for precession photographs with the precession angle $\bar{\mu}=30°$ has been evaluated at about 1300 points in reciprocal space. The most convenient way of expressing this function is probably in the form of charts comparable with Waser's[2] chart for the Lorentz polarization correction of the zero level in precession photographs. A set of charts, Figs. 1–7, derived from large scale drawings of Figs. 1–7 in Part I, are now offered, drawn at intervals of 0.05 rlu above the zero level. The errors in these diagrams are comparable with the error of about 0.35 percent in the evaluated function.

Figures 1–7 may be used directly with upper level precession photographs having a magnification factor[3] $F=5.5$ cm. Corrections for reciprocal levels at intermediate heights may be made by linear interpolation, this operation becoming very rapid if the charts are reproduced on transparent film, and if the reciprocal lattice is drawn out, instead of using the film directly. In these charts, the horizontal direction is parallel with the oscillation axis of the crystal, $\tau=0°$.

ACKNOWLEDGMENT

We wish to thank Dr. R. D. Burbank for making his charts available to us prior to publication.

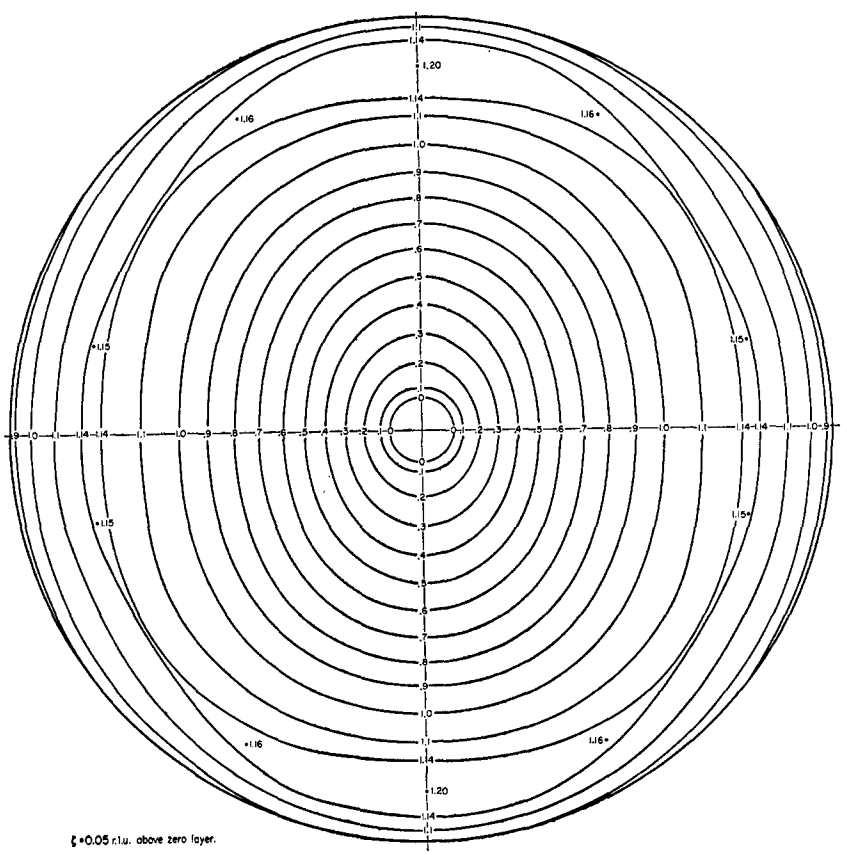

FIG. 1. Lorentz polarization correction chart at $\zeta=0.05$ rlu above the zero level, $\bar{\mu}=30°$.

* This work has been sponsored jointly by the ONR, the Army Signal Corps, and the Air Force under ONR contracts N5ori-07801 and N5ori-07858.
[1] R. D. Burbank, Rev. Sci. Instr. **23**, 321 (1952).
[2] J. Waser, Rev. Sci. Instr. **22**, 567 (1951).
[3] M. J. Buerger, "The photography of the reciprocal lattice," Am. Soc. X-ray and Electron Diffraction Monograph No. 1 (1944).

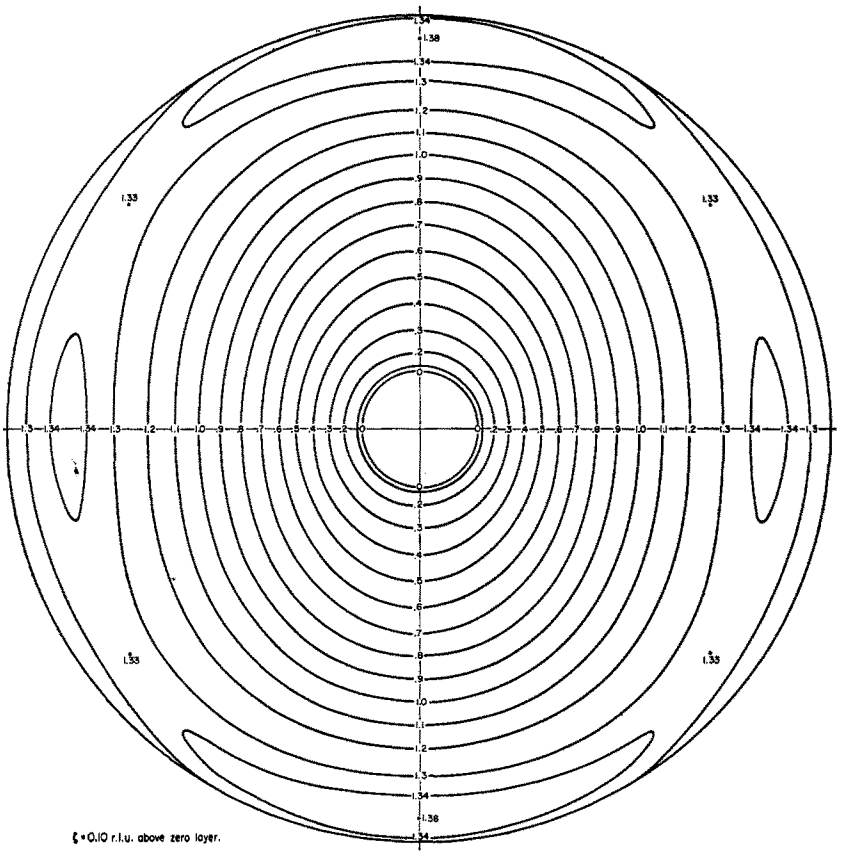

FIG. 2. Lorentz polarization correction chart at $\zeta = 0.10$ rlu above the zero level, $\bar{\mu} = 30°$.

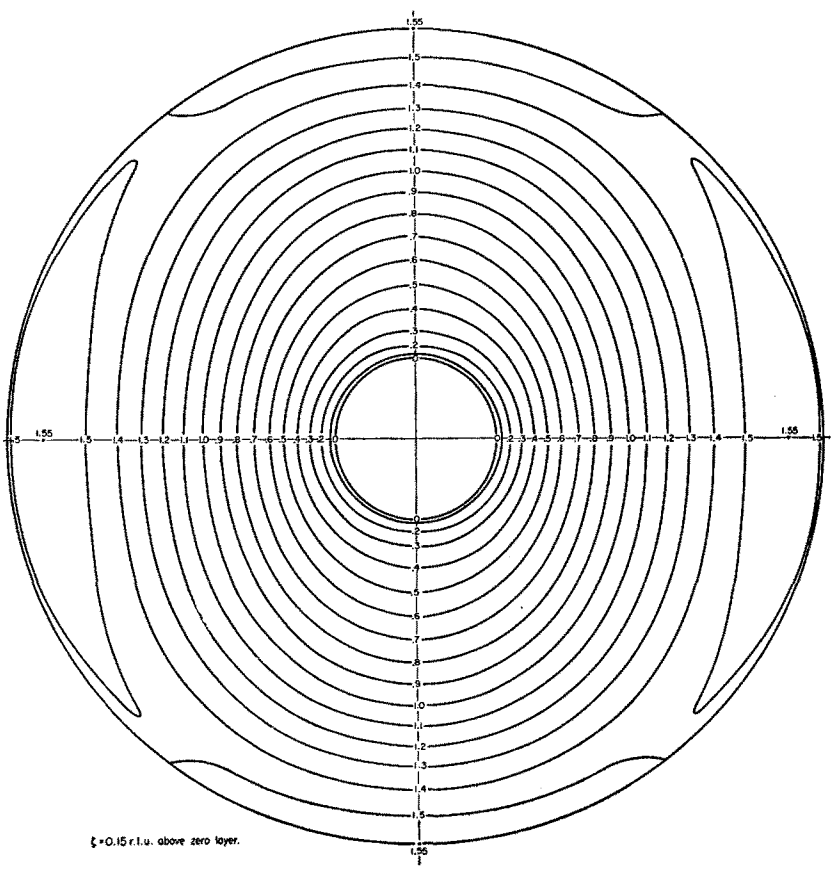

FIG. 3. Lorentz polarization correction chart at $\zeta = 0.15$ rlu above the zero level, $\bar{\mu} = 30°$.

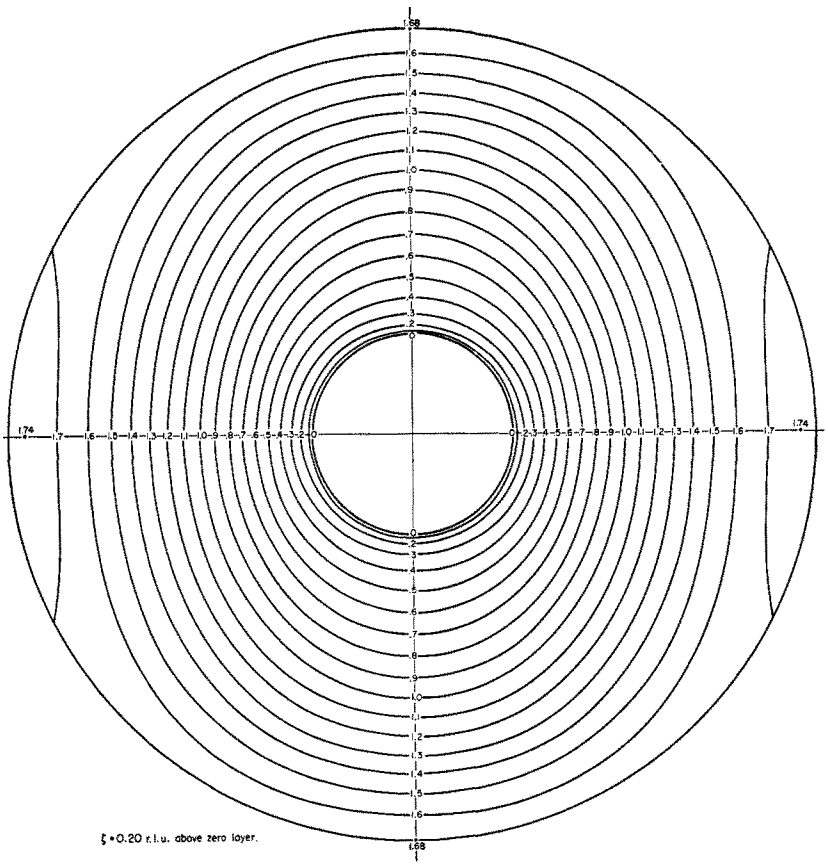

FIG. 4. Lorentz polarization correction chart at $\zeta=0.20$ rlu above the zero level, $\bar{\mu}=30°$.

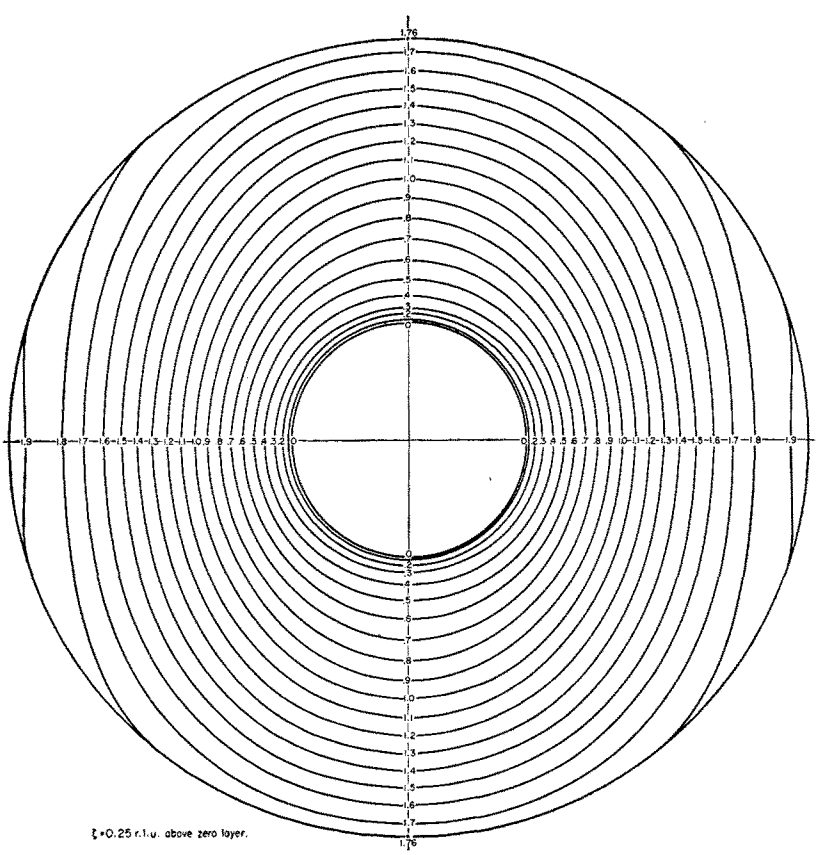

FIG. 5. Lorentz polarization correction chart at $\zeta=0.25$ rlu above the zero level, $\bar{\mu}=30°$.

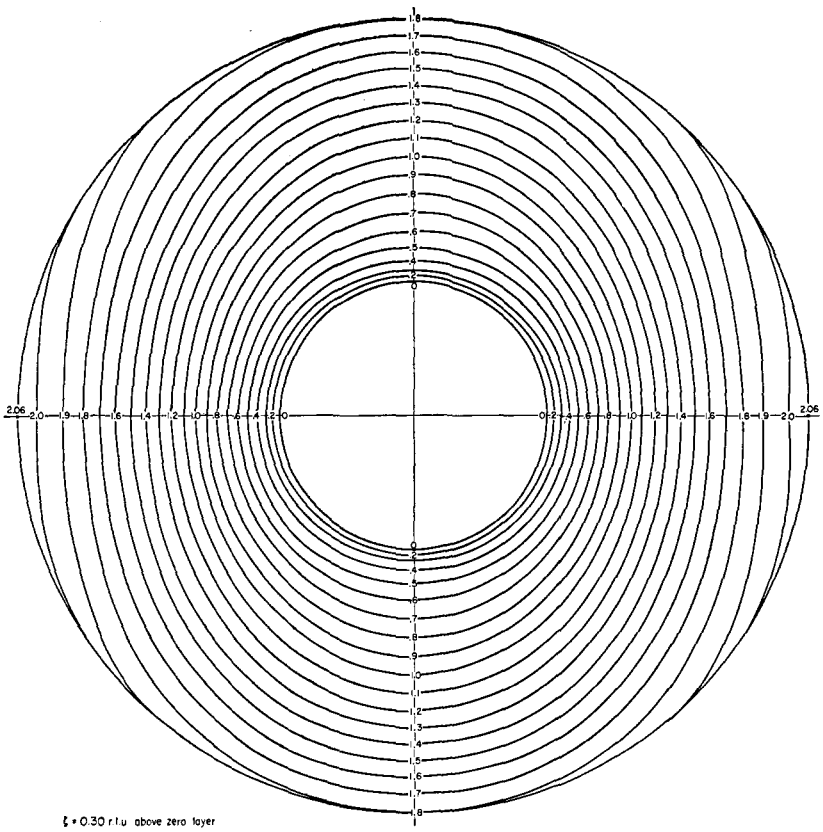

FIG. 6. Lorentz polarization correction chart at $\zeta = 0.30$ rlu above the zero level, $\bar{\mu} = 30°$.

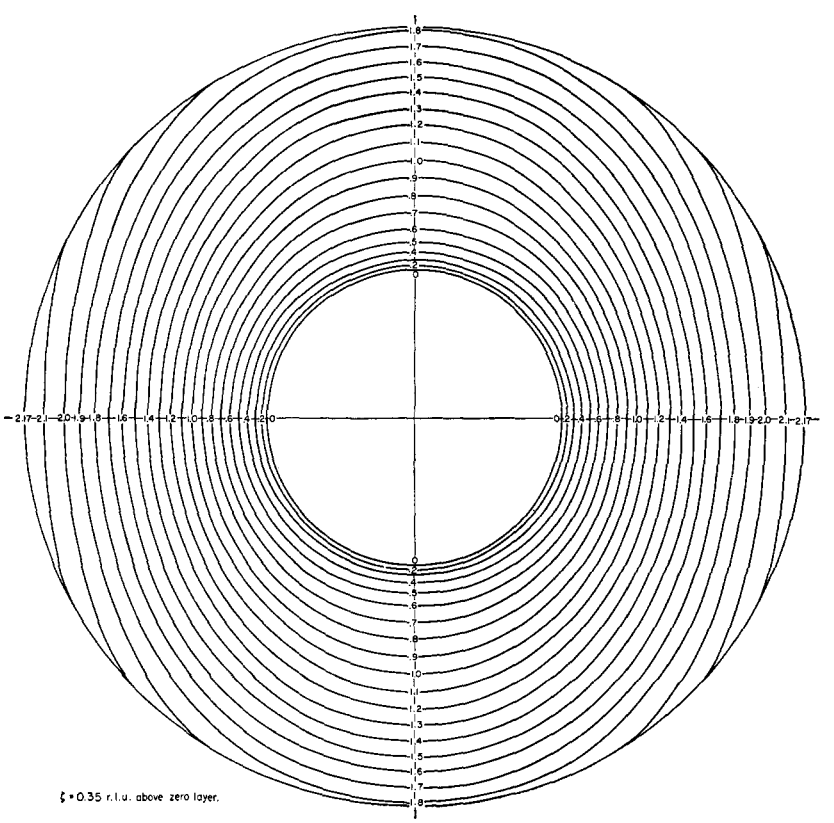

FIG. 7. Lorentz polarization correction chart at $\zeta = 0.35$ rlu above the zero level, $\bar{\mu} = 30°$.