

THE PERIOD-RADIUS RELATION FROM 101 CEPHEID RADII

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Abstract. Surface brightness solutions using the (V-R) color index have been carried out for 52 southern Cepheids and 63 northern Cepheids, with 14 stars in common. For the southern stars the data came from the study by Gieren (1986, M.N.R.A.S., 222, 251), with new observations, and for the northern stars, from Moffett and Barnes (1987, Ap.J., 323, 280). All stars were reduced using the same surface brightness relation and the same transformation from radial velocity to pulsational velocity. The 14 stars in common show that there is only a small systematic difference between the southern and northern data sets and reductions. The combined solution for the 101 Cepheids in the period range 3 to 45 days is $\log R = 1.108 + 0.743 \log P$ with uncertainties of ± 0.023 in the zero point and ± 0.023 in the slope. This result is consistent with the individual results of the above references but has much smaller uncertainty.