Ueber Gruppen, die in Cohomologie-Moore-Räumen operieren

Author(s):
Mislin, Guido

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Die innere Struktur der Sonnenkorona

ABHANDLUNG

zur Erlangung
der Würde eines Doktors der Naturwissenschaften

der

EIDGENÖSSISCHEN TECHNISCHEN
HOCHSCHULE ZÜRICH

vorgelegt von

HARRY NUSSBAUMER
dipl. Physiker ETH
geboren am 16. November 1935
von Glattfelden (Kanton Zürich)

Angenommen auf Antrag von
Prof. Dr. M. Waldmeier, Referent
Prof. Dr. J. P. Blaser, Korreferent

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ABSTRACT

A coronal model is given that explains the observed intensities of the green and red coronal line and their variations but also the observed line widths. The intensity-variations from equator to pole can best be explained by introducing an inhomogeneity-coefficient D. The electron density at the point x then is given by $N(A,x) = \bar{N}(x) \cdot D$ in regions A of high density and $N(B,x) = \bar{N}(x)/D$ in regions B of low density, $\bar{N}$= mean density. Along a line of sight s we suppose the regions A and B to form an alternating succession. From $\int_s \bar{N}(x) \cdot dx = \int_A \bar{N}(x) \cdot D \cdot dx + \int_B \bar{N}(x)/D \cdot dx$ we deduce that the relative lengths of A and B follow the relation $|B| = |A| \cdot D$.

For a six months period in 1957/58 the average line intensities for different heliographic latitudes were taken from observations. For $W = 0^\circ, |20^\circ|, 90^\circ, -90^\circ$ we then found, with $Fe/H = 2.1 \cdot 10^{-5}$, D= 5.5,8,1.5,2 and from the green/red intensity ratio the following temperatures were found: $T \cdot 10^{-6}$= 1.82,1.83,1.68, 1.73. Daily values were calculated as well. (Abb. 6-9).

A new explanation is given for the discrepancy between ionization-temperature and line width temperature. It is shown, that the joint effects of a radial expansion and a temperature gradient can change the line width more than the additive influences of these two effects would allow for. (Tab.9). Although we do not rule out that a difference in the green and red line width temperature may signify different places of origin of the green and red lines we demonstrate with the example of 25/1/1958 [4] that this need not be the case.