THE ROTATIONAL SPECTRUM OF *CIS*- AND *TRANS*-FORMIC ACID, REVISITED

BRENDA P. WINNEWISSER[a], MANFRED WINNEWISSER,[b] MONIKA STEIN, *Physikalisch-Chemisches Institut der Justus-Liebig-Universität, Heinrich-Buff-Ring 58, D-35392 Gießen, Germany*; MANFRED BIRK, GEORG WAGNER, *DLR Oberpfaffenhofen, Postfach 11 16, D-82230 Wessling, Germany*; GISBERT WINNEWISSER, KOICHI M. T. YAMADA, SERGEI P. BELOV, *I. Physikalisches Institut, Universität zu Köln, Zülpicherstrasse 77, D-50937 Köln, Germany*; OLEG I. BASKAKOV, *Department of Quantum Radiophysics, Kharkov State University, Svobody Sq. 4, 310077 Kharkov, Ukraine*.

The initial experimental confirmation of the existence of the *cis* rotamer of formic acid, HCOOH, was based on a small number of pure rotational transitions in the microwave region [W. H. Hocking, *Z. Naturforsch.* **31a**, 1113–1121 (1976)]. Since then, there have been no further report of the observation of spectral features attributable to this species. In order to extend the study of the spectrum of *cis*-HCOOH we have recorded the far infrared spectrum of HCOOH from 30 to 100 cm^{-1} (Oberpfaffenhofen). This spectrum has now been supplemented by millimeter wave measurements (Kharkov) and submillimeter wave measurements (Köln), so that a very extensive set of data is now available for both rotamers. The analysis of the spectrum (Giessen, Kharkov)has now yielded a more complete set of ground state constants for each rotamer than was previously available, providing in particular a sound basis for the search for infrared transitions of *cis*-HCOOH.

[a]Present address: Department of Physics, The Ohio State University, Columbus, Ohio 43210
[b]Present address: Department of Physics, The Ohio State University, Columbus, Ohio 43210