Die Fackel (4, Nos. 117-134)

By -

RareBooksClub. Paperback. Book Condition: New. This item is printed on demand. Paperback. 34 pages. Original publisher: Hampton, VA: Institute for Computer Applications in Science and Engineering, NASA Langley Research Center, 1985 OCLC Number: (OCoLC)472434765 Excerpt: . . . ii Hence, all existing second-order closures predict a state of transverse isotropy for turbulent channel flow in a rapidly rotating framework--a result which is in conflict with the Navier-Stokes equations as demonstrated earlier. In fact, this constitutes a completely spurious physical result since it is well known that a turbulent shear flow must be accompanied by a non-zero turbulent shear stress. Furthermore, since the Coriolis term vanishes in the zz-component of all existing second-order closures (see Eq. (13)), it is clear that these models predict that T 0 (41) zz as they do for a turbulent channel flow in an inertial framing. This result is inconsistent with the Taylor-Proudman theorem for rotating channel flow as discussed earlier. These inconsistencies arise because all existing second-order closure models violate the principle of material frame-indifference in the limit of two-dimensional turbulence--a result which is a rigorous consequence of the Navier-Stokes equations as proven by Speziale. I 17 To be...

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