

# Recommendation for an IUPAP resolution concerning the use of units in the International System of Units (SI)

## U. S. Liaison Committee for IUPAP

To provide input from the physics community for the examination of the role of units for angles being carried out by the Consultative Committee for Units (CCU) of the International Committee for Weights and Measures (CIPM), the International Union of Pure and Applied Physics has passed the following resolution at its General Assembly in 2020.

It is recommended that the Consultative Committee for Units (CCU) of the International Committee for Weights and Measures (CIPM) support the following changes to the SI:

- Change the SI designation of the unit radian for plane angles and phase angles from being a derived dimensionless unit to being an independent unit (formerly a base unit).
- Recognize revolutions (or periods or cycles) as a unit of plane angle or phase angle, representing the repeating segment of a periodic function.
- Always use complete units for periodic phenomena, such as Hz, rad/s, rather than 1/s.
- Specify that names of quantities do not imply particular units.
- Recognize that the angle arguments of trigonometric and exponential functions are to be understood as the numerical value of the angle when that angle is expressed in radians. (For example,  $\sin \theta$  is understood to mean  $\sin\{\theta\}$ , where  $\theta = \{\theta\}$  rad.)
- Allow rad to be replaced by 1 only if it does not introduce ambiguity.