
Subject: Re: Physical constants in IDL with !CONST
Posted by on Mon, 24 Dec 2012 09:37:32 GMT
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Den tisdagen den 18:e december 2012 kl. 23:34:53 UTC+1 skrev Chris Torrence:

> Hi all,
>
>
>
> I'm adding a new system variable to IDL, called !CONST. So far, it's an IDL structure containing the following physical constants, in MKS units. All of these values (except for !const.pi, .e, .phi, and .R_earth) are taken from the "2010 CODATA Recommended Values," from NIST.
>
>
>

> Name	Description	Value
> alpha	Fine structure constant	7.2973525698 x 10-3
> c	Speed of light in a vacuum	299792458 m/s
> e	Euler's number	2.7182818284590452
> ev	elementary charge e, 1 electron volt	1.602176565 x 10-19 C
> eps0	electric vacuum permittivity	8.854187817 x 10-12 F/m
> F	Faraday constant NAe	96485.3365 C/mol
> G	Gravitation constant	6.67384 x 10-11 m ³ /kg/s ²
> gn	Earth standard gravity	9.80665 m/s ²
> h	Planck constant	6.62606957 x 10-34 J s
> hbar	h/(2pi)	1.054571726 x 10-34 J s
> k	Boltzmann constant R/NA	1.3806488 x 10-23 J/K
> me	electron mass	9.10938291 x 10-31 kg
> mn	neutron mass	1.674927351 x 10-27 kg
> mp	proton mass	1.672621777 x 10-27 kg
> mu0	magnetic vacuum permeability	12.566370614 x 10-7 N/A ²
> Na	Avogadro constant NA	6.02214129e23 mol ⁻¹

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>
> phi      golden ratio          1.6180339887498948
>
> pi       Pi                  3.1415926535897932
>
> R        molar gas constant   8.3144621 J/mol/K
>
> R_earth  Earth radius (spherical) 6370997.0 m
>
> re       classical electron radius 2.8179403267 x 10-15 m
>
> rydberg Rydberg constant Rinf    10973731.568539 m-1
>
> sigma    Stefan-Boltzmann constant 5.670373 x 10-8 W/m2/K4
>
> u        unified atomic mass unit 1.660538921 x 10-27 kg
>
>
>
>
> Here's my question: What am I missing? Are there any physical constants that most people
would find useful for their day-to-day work. The key is "most" people - nothing too esoteric, or
limited to a single scientific discipline, etc.
>
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>
> Thanks!
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>
>
> -Chris
>
> ExelisVis
>
> p.s. please limit your comments to !CONST. Our new widget system team is currently hard at
work in a secret underground bunker, and cannot be disturbed.
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I suggest !const.xmase=1224 and !const.xmasd=1225.
