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Research Article

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About Photoeffect

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Abstract

In this article are calculations consistent with experiment.
The photo effect is resonance.

Traditionally, Halpha: $E_3 - E_2 = -1,51\text{eV} - (-3,40\text{eV}) = 1,89\text{eV}$ Spectral line Halfa $656.281 + - 1.4 \text{ nm}$ http://en.wikipedia.org/wiki/Balmer_series:

Introduction

Official physics: Halpha: $E_3 - E_2 = -1,51\text{eV} - (-3,40\text{eV}) = 1,89\text{eV}$

$E_2 \dots T e \text{ kin id} = 0,510998928 \text{ MeV} * [\ln |1-v/c| + (v/c) / (1-v/c)] = 3,4 \text{ eV}$

$E_1 \dots T e \text{ kin id} = 0,510998928 \text{ MeV} * [\ln |1-v/c| + (v/c) / (1-v/c)] = 1,51 \text{ eV}$

BEISER p.74 EXPERIMENT $0.13 - 0.48 \text{ Angstrom}$

$T e \text{ kin id} = 0,510998928 \text{ MeV} * [\ln |1-v/c| + (v/c) / (1-v/c)] = 50 \text{ keV}$ $[\ln |1-v/c| + (v/c) / (1-v/c)] = 50 \text{ keV} / 511 \text{ keV} = 50/511 = 0.09784735812$ $v/c = 0.3376925$ $1-v/c = 0.6623075$ $\ln |1-v/c| = -0.41202532938$

$(v/c) / (1-v/c) = 0.5098726799862602$

$[\ln |1-v/c| + (v/c) / (1-v/c)] = 0.0978473506062602$

.....

Wave

$v/c = 0.3376925$

$1+v/c = 1.3376925$

$\ln |1+v/c| = 0.2909461146$

$(v/c) / (1+v/c) = 0.2524440407642265$

$[\ln |1+v/c| - (v/c) / (1+v/c)] = 0.0385020738357735$

$T e \text{ kin ad} = 0,510998928 \text{ MeV} * [\ln |1+v/c| - (v/c) / (1+v/c)] = T e \text{ kin ad} = 511\text{keV} * 0.0385020738357735 = 19.6745597300802585 \text{ keV}$ Values of h Units Ref.

$6.626070040(81) \times 10^{-34} \text{ Js}$ [1]

$4.135667662(25) \times 10^{-15} \text{ eVs}$

$T e \text{ kin ad} = h * f = 19674.5597300802585 \text{ eV} / 4.135667662 \times 10^{-15} \text{ f} = 4757.28741716 \times 10^{15} \text{ Hz}$

$\text{Lambda} = c/f = 299792458 / 4757.28741716 \times 10^{15} \text{ Hz}$

$\text{Lambda} = 0.630175206397 \text{ Angstrom}$

$0.726348 \text{ A} / 2 \text{ pi} = 0.115601874604912 \text{ A}$ which is consistent with experiment!!

BEISER p.74 EXPERIMENT $0.13 - 0.48 \text{ A}$

The energy of a photon with angular frequency $\omega = 2\pi f$ is given by

$T e \text{ kin ad} = h \cdot \text{škrť} * \omega$

Values of h Units Ref.

$6.626070040(81) \times 10^{-34} \text{ Js}$ [1]

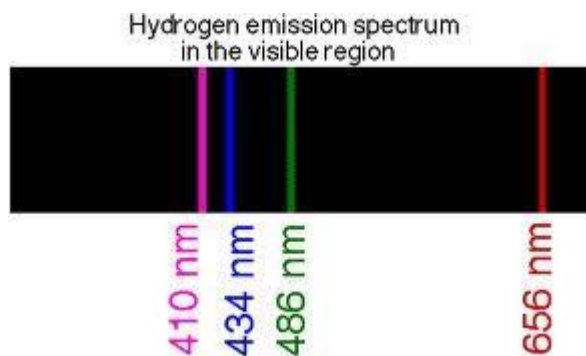
$4.135667662(25) \times 10^{-15} \text{ eVs}$ [2]

$2\pi \text{ EPtP}$

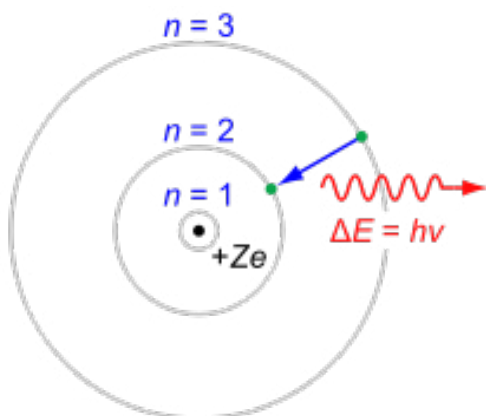
Values of $\hbar$ (h-bar) Units Ref.

$1.054571800(13) \times 10^{-34} \text{ Js/rad [2]}$
 $6.582119514(40) \times 10^{-16} \text{ eVs/rad [2]}$
 1EPtP/rad
 Values of hc Units Ref.
 $1.98644568 \times 10^{-25} \text{ Jm}$
 $1.23984193 \text{ eV}\mu\text{m}$
 2n EPtP
 Values of hc Units Ref.
 $3.16152649 \times 10^{-26} \text{ Jm}$
 $0.19732697 \text{ eV}\mu\text{m}$
 1 EPtP

Official physics: H alpha: $E_3 - E_2 = -1,51\text{eV} - (-3,40\text{eV}) = 1,89\text{eV}$
 Graphical abstract
 Spectral line Halfa $656.281 \pm 1.4 \text{ nm}$



http://en.wikipedia.org/wiki/Balmer_series :



$E_2 \dots T_e \text{ kin id} = 0,510998928 \text{ MeV} * [\ln |1-v/c| + (v/c) / (1-v/c)] = 3,4 \text{ eV}$
 $E_1 \dots T_e \text{ kin id} = 0,510998928 \text{ MeV} * [\ln |1-v/c| + (v/c) / (1-v/c)] = 1,51 \text{ eV}$

BEISER p.74 EXPERIMENT $0.13 - 0.48 \text{ Angstrom}$

$T_e \text{ kin id} = 0,510998928 \text{ MeV} * [\ln |1-v/c| + (v/c) / (1-v/c)] = 50 \text{ keV}$
 $[\ln |1-v/c| + (v/c) / (1-v/c)] = 50 \text{ keV} / 511 \text{ keV} = 50/511 = 0.09784735812$

$v/c = 0.3376925$
 $1-v/c = 0.6623075 \ln |1-v/c| = -0.41202532938$
 $(v/c) / (1-v/c) = 0.5098726799862602$
 $[\ln |1-v/c| + (v/c) / (1-v/c)] = 0.0978473506062602$

.....
 Wave
 $v/c = 0.3376925 \ln |1+v/c| = 0.2909461146$
 $(v/c) / (1+v/c) = 0.2524440407642265$

$$[\ln |1+v/c| - (v/c) / (1+v/c)] = 0.0385020738357735$$

$$T_{e\text{ kin ad}} = 0,510998928 \text{ MeV} * [\ln |1+v/c| - (v/c) / (1+v/c)] =$$

$$T_{e\text{ kin ad}} = 511\text{keV} * 0.0385020738357735 = 19.6745597300802585 \text{ keV}$$

Values of h	Units	Ref.
$6.626070040(81) \times 10^{-34}$	J·s	[1]
$4.135667662(25) \times 10^{-15}$	eV·s	

$$T_{e\text{ kin ad}} = h \cdot f = 19674.5597300802585 \text{ eV} / 4.135667662 \times 10^{-15} \text{ s} = 81367.440439780373743050627 \text{ e+15 Hz}$$

$$\Lambda = c/f = 299792458 / 81367.440439780373743050627 \text{ e+15 Hz} = 0.0000000000036844 \text{ m} = 0.036844 \text{ nm}$$

$$A = 0.0036844 \text{ nm}$$

$$0.726348 \text{ A/2 } \pi = 0.115601874604912 \text{ A } \check{\text{čo by sedelo s experimentom!!}}$$

$$\text{BEISER p.74 EXPERIMENT } 0.13 - 0.48 \text{ A}$$

The energy of a photon with angular frequency $\omega = 2\pi f$ is given by

$$T_{e\text{ kin ad}} = h \cdot \sqrt{\omega}$$

Values of h	Units	Ref.
$6.626070040(81) \times 10^{-34}$	J·s	[1]
$4.135667662(25) \times 10^{-15}$	eV·s	[2]
2π	$EP \cdot tP$	
Values of $\hbar$ (h-bar)	Units	Ref.
$1.054571800(13) \times 10^{-34}$	J·s/rad	[2]
$6.582119514(40) \times 10^{-16}$	eV·s/rad	[2]
1	$EP \cdot tP / \text{rad}$	
Values of hc	Units	Ref.
$1.98644568 \times 10^{-25}$	J·m	
1.23984193	eV· μm	
2π	$EP \cdot \ell P$	
Values of $\hbar c$	Units	Ref.
$3.16152649 \times 10^{-26}$	J·m	
0.19732697	eV· μm	
1	$EP \cdot \ell P$	

$$v/c = 0.3376924 \quad 1-v/c = 0.6623076 \quad \ln |1-v/c| = -0.41202517839$$

$$(v/c) / (1-v/c) = 0.5098724520147436$$

$$[\ln |1-v/c| + (v/c) / (1-v/c)] = 0.0978472736247436$$

$$v/c = 0.3376923 \quad 1-v/c = 0.6623077 \quad \ln |1-v/c| = -0.4120250274$$

$$(v/c) / (1-v/c) = 0.5098722240432959 \quad [\ln |1-v/c| + (v/c) / (1-v/c)] = 0.0978471966432959$$

$$v/c = 0.3376901 \quad 1-v/c = 0.6623099 \quad \ln |1-v/c| = -0.41202170569$$

$$(v/c) / (1-v/c) = 0.509867208688863$$

$$[\ln |1-v/c| + (v/c) / (1-v/c)] = 0.097845502998863$$

$$v/c = 0.33769 \quad 1-v/c = 0.66231 \quad \ln |1-v/c| = -0.4120215547$$

$$(v/c) / (1-v/c) = 0.5098669807189987 \quad [\ln |1-v/c| + (v/c) / (1-v/c)] = 0.0978454260189987$$

$$v/c = 0.33758 \quad 1-v/c = 0.66242 \quad \ln |1-v/c| = -0.41185548313$$

$$(v/c) / (1-v/c) = 0.5096162555478397 \quad [\ln |1-v/c| + (v/c) / (1-v/c)] = 0.0977607724178397$$

$$v/c = 0.33701 \quad 1-v/c = 0.66299 \quad \ln |1-v/c| = -0.41099537186$$

$$(v/c) / (1-v/c) = 0.5083183758427729 \quad [\ln |1-v/c| + (v/c) / (1-v/c)] = 0.0973230039827729$$

$$v/c = 0.337 \quad 1-v/c = 0.663 \quad \ln |1-v/c| = -0.41098028879$$

$$(v/c) / (1-v/c) = 0.5082956259426848$$

$$[\ln |1-v/c| + (v/c) / (1-v/c)] = 0.0973153371526848$$

$$v/c = 0.33 \quad 1-v/c = 0.67 \quad \ln |1-v/c| = -0.40047756659$$

$$(v/c) / (1-v/c) = 0.4925373134328358$$

$$[\ln |1-v/c| + (v/c) / (1-v/c)] = 0.0920597468428358$$

$$v/c = 0.34 \quad 1-v/c = 0.66 \quad \ln |1-v/c| = -0.41551544396$$

$$(v/c) / (1-v/c) = 0.5151515151515152$$

$$[\ln |1-v/c| + (v/c) / (1-v/c)] = 0.0996360711915152$$

$$v/c = 0.35 \quad 1-v/c = 0.65 \quad \ln |1-v/c| = -0.43078291609$$

$$(v/c) / (1-v/c) = 0.5384615384615385$$

$$[\ln |1-v/c| + (v/c) / (1-v/c)] = 0.1076786223715385$$

$$T_{\text{e kin id}} = 0.510998928 \text{ MeV} * [\ln |1-v/c| + (v/c) / (1-v/c)] = 40 \text{ keV} \quad [\ln |1-v/c| + (v/c) / (1-v/c)] = 40 \text{ keV} / 511 \text{ keV} = 40/511 = 0.07827788649$$

$$v/c = 0.3 \quad 1-v/c = 0.7 \quad \ln |1-v/c| = -0.35667494393$$

$$(v/c) / (1-v/c) = 0.4285714285714286$$

$$[\ln |1-v/c| + (v/c) / (1-v/c)] = 0.0718964846414286$$

$$v/c = 0.31$$

$$1-v/c = 0.69 \quad \ln |1-v/c| = -0.37106368139$$

$$(v/c) / (1-v/c) = 0.4492753623188406$$

$$[\ln |1-v/c| + (v/c) / (1-v/c)] = 0.0782116809288406$$

$$v/c = 0.3101 \quad 1-v/c = 0.6899 \quad \ln |1-v/c| = -0.37120861943$$

$$(v/c) / (1-v/c) = 0.4494854326714017$$

$$[\ln |1-v/c| + (v/c) / (1-v/c)] = 0.0782768132414017$$

$$v/c = 0.310101 \quad 1-v/c = 0.689899 \quad \ln |1-v/c| = -0.37121006891$$

$$(v/c) / (1-v/c) = 0.4494875336824666$$

$$[\ln |1-v/c| + (v/c) / (1-v/c)] = 0.0782774647724666$$

$$40/511 = 0.07827788649$$

Wave

$$v/c = 0.310101 \quad 1+v/c = 1.310101 \quad \ln |1+v/c| = 0.27010423347$$

$$(v/c) / (1+v/c) = 0.2367000712158834$$

$$[\ln |1+v/c| - (v/c) / (1+v/c)] = 0.0334041622541166$$

$$T_{\text{e kin ad}} = 0.510998928 \text{ MeV} * [\ln |1+v/c| - (v/c) / (1+v/c)] =$$

$$T_{\text{e kin ad}} = 511 \text{ keV} * 0.0334041622541166 = 17.0695269118535826 \text{ keV}$$

Values of h	Units	Ref.
$6.626070040(81) \times 10^{-34}$	J·s	[1]
$4.135667662(25) \times 10^{-15}$	eV·s	

$$T_{\text{e kin ad}} = h * f = 17069.5269118535826 \text{ eV} / 4.135667662 \times 10^{-15} \text{ s} = 4127.3932788880806835 \text{ e+15 Hz}$$

$$\text{Lambda} = c/f = 299792458 / 4127.3932788880806835 \text{ e+15 Hz}$$

$$\text{Lambda} = 0.000000000726348 \text{ m} = 0.726348 \text{ A} = 0.0726348 \text{ nm}$$

$$0.726348 \text{ A} / 2 \pi = 0.115601874604912 \text{ A} \quad \text{čo by sedelo s experimentom !!}$$

BEISER p.74 EXPERIMENT 0.13 – 0.48 A

The energy of a photon with angular frequency $\omega = 2\pi f$ is given by

$$T_{e\text{ kin ad}} = h \cdot \text{škrť} \cdot \omega$$

Values of h	Units	Ref.
$6.626070040(81) \times 10^{-34}$	J·s	[1]
$4.135667662(25) \times 10^{-15}$	eV·s	[2]
2π	$EP \cdot tP$	
Values of $\hbar$ (h-bar)	Units	Ref.
$1.054571800(13) \times 10^{-34}$	J·s/rad	[2]
$6.582119514(40) \times 10^{-16}$	eV·s/rad	[2]
1	$EP \cdot tP$ /rad	
Values of hc	Units	Ref.
$1.98644568 \times 10^{-25}$	J·m	
1.23984193	eV·μm	
2π	$EP \cdot \ell P$	
Values of $\hbar c$	Units	Ref.
$3.16152649 \times 10^{-26}$	J·m	
0.19732697	eV·μm	
1	$EP \cdot \ell P$	

.....

$$v/c = 0.31011 \quad 1-v/c = 0.68989 \quad \ln |1-v/c| = -0.37122311438$$

$$(v/c) / (1-v/c) = 0.4495064430561394$$

$$[\ln |1-v/c| + (v/c) / (1-v/c)] = 0.0782833286761394$$

.....

$$v/c = 0.311 \quad 1-v/c = 0.689 \quad \ln |1-v/c| = -0.37251400796$$

$$(v/c) / (1-v/c) = 0.4513788098693759$$

$$[\ln |1-v/c| + (v/c) / (1-v/c)] = 0.0788648019093759$$

.....

$$T_{e\text{ kin id}} = 0,510998928 \text{ MeV} \cdot [\ln |1-v/c| + (v/c) / (1-v/c)] = 30 \text{ keV} \quad [\ln |1-v/c| + (v/c) / (1-v/c)] = 30 \text{ keV} / 511 \text{ keV} = 30/511 = 0.05870841487$$

$$v/c = 0.4 \quad 1-v/c = 0.6 \quad \ln |1-v/c| = -0.51082562376$$

$$(v/c) / (1-v/c) = 0.6666666666666667$$

$$[\ln |1-v/c| + (v/c) / (1-v/c)] = 0.1558410429066667$$

$$T_{e\text{ kin id}} = 0,510998928 \text{ MeV} \cdot [\ln |1-v/c| + (v/c) / (1-v/c)] = 20 \text{ keV} \quad [\ln |1-v/c| + (v/c) / (1-v/c)] = 20 \text{ keV} / 511 \text{ keV} = 20/511 = 0.03913894324$$

.....

$$v/c = 0.3 \quad 1-v/c = 0.7 \quad \ln |1-v/c| = -0.35667494393$$

$$(v/c) / (1-v/c) = 0.4285714285714286$$

$$[\ln |1-v/c| + (v/c) / (1-v/c)] = 0.0718964846414286$$

.....

$$v/c = 0.2 \quad 1-v/c = 0.8 \quad \ln |1-v/c| = -0.22314355131$$

$$(v/c) / (1-v/c) = 0.25$$

$$[\ln |1-v/c| + (v/c) / (1-v/c)] = 0.02685644869$$

.....

$$v/c = 0.1 \quad 1-v/c = 0.9 \quad \ln |1-v/c| = -0.10536051565$$

$$(v/c) / (1-v/c) = 0.1111111111111111$$

$$[\ln |1-v/c| + (v/c) / (1-v/c)] = 0.0057505954611111$$

XX

$$[\ln |1-v/c| + (v/c) / (1-v/c)] = 3,7159509852767516181284672827069e-6$$

$$\text{Max } v/c = 0,0027212042$$

$$1-v/c = 0,9972787958 \quad \ln |1-v/c| = -0,0027249134066830536111720837817173$$

$$(v/c) / (1-v/c) = 0,0027286293576683303627902122492917$$

$$\text{T e kin id } (v/c = 0,0027212042) =$$

$$= 0,510998928 * [\ln |1-v/c| + (v/c) / (1-v/c)] =$$

$$= 0,510998928 * 3,7159509852767516181284672827069e-6 \text{ MeV}/c^2 =$$

$$\text{T e kin id } (v/c = 0,0027212042) = 1,8988469699769638601859121477463 \text{ eV} =$$

$$= -3,042288125312584936526624287197e-19 \text{ J}$$

$$[\ln |1-v/c| + (v/c) / (1-v/c)] = 3,704855771252357587813986763267e-6 \quad \text{min } v/c = 0,002717146 \quad 1-v/c = 0,997282854$$

$$\ln |1-v/c| = -0,0027208441416388645519324212824174$$

$$(v/c) / (1-v/c) = 0,0027245489974101169095202352691807$$

$$\text{T e kin id } (v/c = 0,002717146) =$$

$$= 0,510998928 \text{ MeV} * [\ln |1-v/c| + (v/c) / (1-v/c)] =$$

$$= 0,510998928 \text{ MeV} * 3,704855771252357587813986763267e-6 =$$

$$\text{Tekinid}(v/c=0,002717146) = 1,8931773275045679448456130994356 \text{ eV} = -3,0332043569830353292046935751998e-19 \text{ J}$$

$$\text{T e kin id } (v/c = 0,0027212042) - \text{T e kin id } (v/c = 0,002717146) =$$

$$1,8931773275045679448456130994356 \text{ eV} - 1,8988469699769638601859121477463 \text{ eV} = -0,005669642472395915340299048311 \text{ eV} = 9,0837683295496073219307119971823e-22 \text{ J}$$

$$h^*f = \text{T e kin id } (v/c = 0,0027212042) - \text{T e kin id } (v/c = 0,002717146) = 9,0837683295496073219307119971823e-22 \text{ J}$$

$$h = 9,0837683295496073219307119971823e-22 \text{ J} /$$

$$\text{The wavelength according to Broglie } \lambda = \frac{h}{mv}$$

$$\text{according to Compton } \lambda = \frac{h}{mc}$$

$$\lambda = \frac{h}{mc} \left[\frac{\cos^2 \varphi}{\ln \left| 1 - \frac{v}{c} \cos \varphi \right| + \frac{\frac{v}{c} \cos \varphi}{1 - \frac{v}{c} \cos \varphi}} \right]$$

according to Vlček

$$\lambda = h / mc [\ln |1-v/c| + (v/c) / (1-v/c)] = \lambda = h / mc [\ln |1+v/c| - (v/c) / (1+v/c)] =$$

$$\text{Official physics: Halpha: } E3 - E2 = -1,51 \text{ eV} - (-3,40 \text{ eV}) = 1,89 \text{ eV}$$

$$\text{Electron in afnucl ... } v/c = 0,002717146$$

$$\text{For } 654,9 \text{ nm} \dots [\ln |1-v/c| + (v/c) / (1-v/c)] = 3,704855771252357587813986763267e-6$$

$$\lambda = h / mc [\ln |1-v/c| + (v/c) / (1-v/c)] =$$

$$654,9 \text{ nm} = h / (0,510998928 \text{ MeV}/c) [\ln |1-v/c| + (v/c) / (1-v/c)] =$$

$$654,9 \text{ nm} = h / (510998,928 \text{ eV} / 299792458 \text{ m/s}) [\ln |1-v/c| + (v/c) / (1-v/c)] =$$

$$\text{For } 654,9 \text{ nm} \dots [\ln |1-v/c| + (v/c) / (1-v/c)] = 3,704855771252357587813986763267e-6$$

$$654,9 \text{ nm} = h / \{ (0,0017045089506554564491412255607845 \text{ eVs/m}) *$$

$$* 3,704855771252357587813986763267e-6 \} =$$

$$654,9 \text{ nm} = h / \{ 6,3149598229871678254347982944775e-9 \text{ eVs/m} \} = h = 654,9e-9 \text{ m}$$

$$* \{ 6,3149598229871678254347982944775e-9 \text{ eVs/m} \} =$$

$$h = 4,1356671880742962088772494030533e-15 \text{ eVs}$$

Values of h Units Ref.

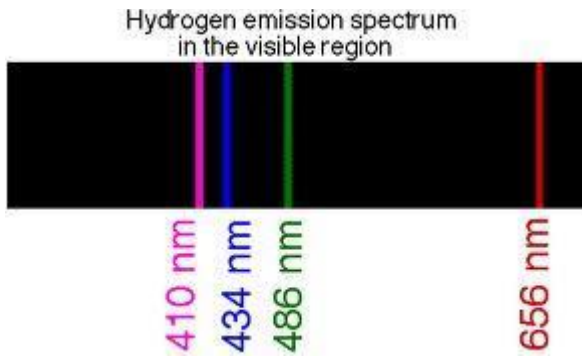
$$6.62606957(29) \times 10^{-34} \text{ J}\cdot\text{s} \quad [1]$$

$$4.135667516(91) \times 10^{-15} \text{ eV}\cdot\text{s}$$

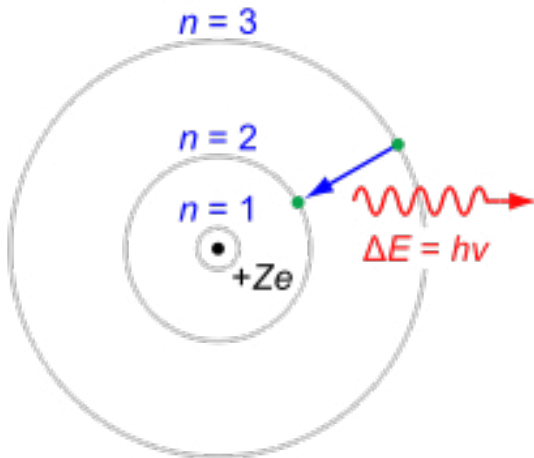
$$\text{Official physics: Halpha: } E3 - E2 = -1,51 \text{ eV} - (-3,40 \text{ eV}) = 1,89 \text{ eV}$$

Graphical abstract

Spectral line Halfa $656.281 \pm 1.4 \text{ nm}$



http://en.wikipedia.org/wiki/Balmer_series :



E2T e kin id =0,510998928 MeV * [ln |1-v/c|+ (v/c) / (1-v/c)] = 3,4 eV
E1T e kin id =0,510998928 MeV * [ln |1-v/c|+ (v/c) / (1-v/c)] = 1,51 eV
BEISER p.74 EXPERIMENT 0.13 – 0.48 A

T e kin id = 0,510998928 MeV * [ln |1-v/c|+ (v/c) / (1-v/c)] = 50 keV [ln |1-v/c|+ (v/c) / (1-v/c)] = 50 keV/511 keV
= 50/511 = 0.09784735812 v/c = 0.65 1-v/c = 0.35 ln |1-v/c| = -1.0498221245
(v/c) / (1-v/c) = 1.85714285714
[ln |1-v/c|+ (v/c) / (1-v/c)] = 0.80732073264

T e kin id = 0,510998928 MeV * [ln |1-v/c|+ (v/c) / (1-v/c)] = 40 keV [ln |1-v/c|+ (v/c) / (1-v/c)] = 40 keV/511 keV
= 40/511 = 0.07827788649
v/c = 0.3
1-v/c = 0 ln |1-v/c| = -0.35667494393 (v/c) / (1-v/c) = 0.4285714285714286 7
[ln |1-v/c|+ (v/c) / (1-v/c)] = 0.0718964846414286
v/c = 0.31

1-v/c = 0.69 ln |1-v/c| = -0.37106368139 (v/c) / (1-v/c) = 0.4492753623188406 [ln |1-v/c|+ (v/c) / (1-v/c)] = 0.0782116809288406

v/c = 0.3101 1-v/c = 0.6899 ln |1-v/c| = -0.37120861943
(v/c) / (1-v/c) = 0.4494854326714017
[ln |1-v/c|+ (v/c) / (1-v/c)] = 0.0782768132414017

v/c = 0.310101 1-v/c = 0.689899 ln |1-v/c| = -0.37121006891
(v/c) / (1-v/c) = 0.4494875336824666
[ln |1-v/c|+ (v/c) / (1-v/c)] = 0.0782774647724666
40/511 = 0.07827788649

Wave

$$v/c = 0.310101 \quad 1+v/c = 1.310101 \quad \ln |1+v/c| = 0.27010423347$$

$$(v/c) / (1+v/c) = 0.2367000712158834$$

$$[\ln |1+v/c| - (v/c) / (1+v/c)] = 0.0334041622541166$$

$$T_{e \text{ kin ad}} = 0,510998928 \text{ MeV} * [\ln |1+v/c| - (v/c) / (1+v/c)] =$$

$$T_{e \text{ kin ad}} = 511\text{keV} * 0.0334041622541166 = 17.0695269118535826 \text{ keV}$$

Values of h	Units	Ref.
$6.626070040(81) \times 10^{-34}$	J·s	[1]
$4.135667662(25) \times 10^{-15}$	eV·s	

$$T_{e \text{ kin ad}} = h * f$$

$$f = 17069.5269118535826 \text{ eV} / 4.135667662 \times 10^{-15} \text{ s} = 4127.3932788880806835 \text{ e+15 Hz}$$

$$\text{Lambda} = c/f = 299792458 / 4127.3932788880806835 \text{ e+15 Hz}$$

$$\text{Lambda} = 0.0000000000726348 \text{ m} = 0.726348 \text{ A} = 0.0726348 \text{ nm}$$

$$0.726348 \text{ A} / 2 \text{ pi} = 0.115601874604912 \text{ A} \text{ čo by sedelo s experimentom!!?}$$

Výstupná práca je kde????

BEISER p.74 EXPERIMENT 0.13 – 0.48 A

The energy of a photon with angular frequency $\omega = 2\pi f$ is given by

$$T_{e \text{ kin ad}} = h \text{ škrt} * \omega$$

Values of h	Units	Ref.
$6.626070040(81) \times 10^{-34}$	J·s	[1]
$4.135667662(25) \times 10^{-15}$	eV·s	[2]
2π	$EP \cdot tP$	
Values of $\hbar$ (h-bar)	Units	Ref.
$1.054571800(13) \times 10^{-34}$	J·s/rad	[2]
$6.582119514(40) \times 10^{-16}$	eV·s/rad	[2]
1	$EP \cdot tP / \text{rad}$	
Values of hc	Units	Ref.
$1.98644568 \times 10^{-25}$	J·m	
1.23984193	eV·μm	
2π	$EP \cdot \ell P$	
Values of $\hbar c$	Units	Ref.
$3.16152649 \times 10^{-26}$	J·m	
0.19732697	eV·μm	
1	$EP \cdot \ell P$	

.....

$$v/c = 0.31011 \quad 1-v/c = 0.68989 \quad \ln |1-v/c| = -0.37122311438$$

$$(v/c) / (1-v/c) = 0.4495064430561394$$

$$[\ln |1-v/c| + (v/c) / (1-v/c)] = 0.0782833286761394$$

.....

$$v/c = 0.311 \quad 1-v/c = 0.689 \quad \ln |1-v/c| = -0.37251400796$$

$$(v/c) / (1-v/c) = 0.4513788098693759$$

$$[\ln |1-v/c| + (v/c) / (1-v/c)] = 0.0788648019093759$$

.....

$$T_{e \text{ kin id}} = 0,510998928 \text{ MeV} * [\ln |1-v/c| + (v/c) / (1-v/c)] = 30 \text{ keV}$$

$$[\ln |1-v/c| + (v/c) / (1-v/c)] = 30 \text{ keV} / 511 \text{ keV} = 30/511 = 0.05870841487 \text{ v/c} = 0.4 \quad 1-v/c = 0.6 \quad \ln |1-v/c| = -0.51082562376$$

$$(v/c) / (1-v/c) = 0.6666666666666667$$

$$[\ln |1-v/c| + (v/c) / (1-v/c)] = 0.1558410429066667$$

$$T_{e \text{ kin id}} = 0,510998928 \text{ MeV} * [\ln |1-v/c| + (v/c) / (1-v/c)] = 20 \text{ keV} \quad [\ln |1-v/c| + (v/c) / (1-v/c)] = 20 \text{ keV} / 511 \text{ keV} =$$

.....

$$\ln |1-v/c| = -0.35667494393$$

$$(v/c) / (1-v/c) = 0.25$$

$$\ln |1-v/c| = -0.10536051565 \quad (v/c) / (1-v/c) = 0.1111111111111111$$

[illegible]

$$\text{Max } v_e / c = 0,0027212042$$

$$(v/c) / (1-v/c) = 0.0027286293576683303627902122492917$$

$$= 0,510998928 * [\ln |1-v/c| + (v/c) / (1-v/c)] =$$

$T_{e\text{ kin id}} (v_e/c = 0,0027212042) = 1,8988469699$

$$\ln |1-v/c| = -0,0027208441416388645519324212824174$$

T e kin id (ve /c = 0,002717146) =

$$= 0,510998928 \text{ MeV} * [\ln |1-v/c| + (v/c) / (1-v/c)] =$$

$$= 0,510998928 \text{ MeV} * 3,704855771252357587813986763267e-6 =$$

Tekinid(ve/c=0,002717146)= 1,8931773275045679448456130994356eV = -3,0332043569830353292046935751998e-

19 J

T e kin id (ve/c = 0.0027212042) - T e kin id (ve/c =0.002717146) =

$$1.8931773275045679448456130994356 \text{ eV} - 1.8988469699769638601859121477463 \text{ eV} = -0.00566964247239591534$$

$$0.299048311 \text{ eV} = 9.0837683295496073219307119971823 \times 10^{-22} \text{ J}$$

$h^*f = T \text{ e kin id (ve/c} = 0,0027212042) - T \text{ e kin id (ve/c} = 0,002717146) = 9,0837683295496073219307119971823e-22 \text{ J}$

$$h = 9.0837683295496073219307119971823e-22 \text{ J} \cdot \text{s}$$

The wavelength according to Broglie $\lambda = \frac{h}{mv}$

according to Compton $\lambda = \frac{h}{mc}$

$$\lambda = \frac{h}{mc} \left[\frac{\cos^2 \varepsilon}{\ln \left| 1 - \frac{v}{c} \cos \varepsilon \right| + \frac{\frac{v}{c} \cos \varepsilon}{1 - \frac{v}{c} \cos \varepsilon}} \right]$$

according to Vlček

$$\lambda = h / mc [\ln |1-v/c| + (v/c) / (1-v/c)] = \lambda = h / mc [\ln |1+v/c| - (v/c) / (1+v/c)] = \text{Official physics: Halpha : E3 - E2}$$

$$= -1,51\text{eV} - (-3,40\text{eV}) = 1,89\text{eV}$$

Electron in afnucl ... $v/c = 0,002717146$

For 654,9nm..... $[\ln |1-v/c| + (v/c) / (1-v/c)] = 3,704855771252357587813986763267e-6$

$$\lambda = h / mc [\ln |1-v/c| + (v/c) / (1-v/c)] =$$

$$654,9\text{nm} = h / (0,510998928 \text{ MeV}/c) [\ln |1-v/c| + (v/c) / (1-v/c)] =$$

$$654,9\text{nm} = h / (510998,928 \text{ eV}/299792458 \text{ m/s}) [\ln |1-v/c| + (v/c) / (1-v/c)] =$$

For 654,9nm..... $[\ln |1-v/c| + (v/c) / (1-v/c)] = 3,704855771252357587813986763267e-6$

$$654,9\text{nm} = h / \{ (0,0017045089506554564491412255607845 \text{ eVs/m}) *$$

$$* 3,704855771252357587813986763267e-6 \} =$$

$$654,9\text{nm} = h / \{ 6,3149598229871678254347982944775e-9 \text{ eVs/m} \} = h = 654,9e-9 \text{ m}$$

$$* \{ 6,3149598229871678254347982944775e-9 \text{ eVs/m} \} =$$

$$h = 4,1356671880742962088772494030533e-15 \text{ eVs}$$

Values of h Units Ref.

$$6.62606957(29) \times 10^{-34} \text{ J}\cdot\text{s} \quad [1]$$

$$4.135667516(91) \times 10^{-15} \text{ eV}\cdot\text{s}$$

Calculations Plank's constant

23. The wavelength according to Broglie $\lambda = \frac{h}{mv}$

according to Compton $\lambda = \frac{h}{mc}$

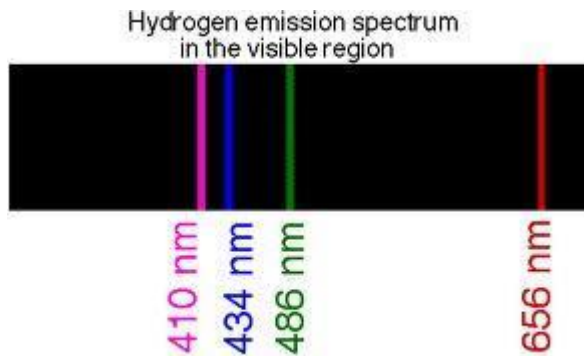
$$\lambda = \frac{h}{mc} \left[\frac{\cos^2 \varphi}{\ln \left| 1 - \frac{v}{c} \cos \varphi \right| + \frac{\frac{v}{c} \cos \varphi}{1 - \frac{v}{c} \cos \varphi}} \right]$$

according to Vlček

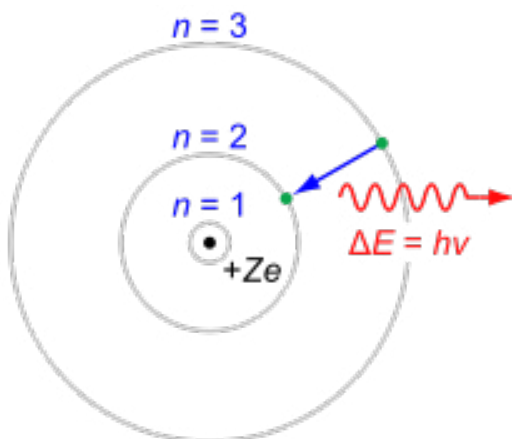
Official physics: Halpha: $E_3 - E_2 = -1,51\text{eV} - (-3,40\text{eV}) = 1,89\text{eV}$

Graphical abstract

Spectral line Halfa 656.281 + - 1.4 nm



http://en.wikipedia.org/wiki/Balmer_series :



$$E2 \dots T_{e \text{ kin id}} = 0,510998928 \text{ MeV} * [\ln |1-v/c| + (v/c) / (1-v/c)] = 3,4 \text{ eV}$$

$$E1 \dots T_{e \text{ kin id}} = 0,510998928 \text{ MeV} * [\ln |1-v/c| + (v/c) / (1-v/c)] = 1,51 \text{ eV}$$

In the simplified Rutherford Bohr model of the hydrogen atom, the Balmer lines result from an electron jump between the second energy level closest to the nucleus, and those levels more distant. Shown here is a photon emission. The transition depicted here produces H-alpha, the first line of the Balmer series. For hydrogen (H) this transition results in a photon of wavelength 656 nm (red).

In 1900 Max Planck hypothesized that the frequency of light emitted by the black body depended on the frequency of the oscillator that emitted it, and the energy of these oscillators increased linearly with frequency (according to his constant h , where $E = h\nu$).

Theoretical Planck's oscillator we can replace with circulating electron along ellipse around the nucleus of an atom between two Bohr's energy levels, while electron moving alternately with acceleration and deceleration. This electron really blinks. When an electron moves at the speed of a higher Bohr energy levels (from afnucleus) to lower (towards perinucleus) radiates spectral lines of certain thickness. (real blinks) For example, spectral line Halfa 656.281 + - 1.4 nm. From the thickness of the spectral lines we can easily identify the smallest (in afnucleus) and largest (in perinucleus) the speed of the electron around the nucleus of an atom, taking into account the kinetic energy of the electron in the direction of movement and against the movement if we know that according to the Doppler principle is the lowest wavelength (highest frequency) and against the direction of motion of the electron is a wavelength of the highest (lowest frequency).

$\frac{v}{c}$	Front of electron $\left[\ln \left 1 - \frac{v}{c} \right + \frac{\frac{v}{c}}{1 - \frac{v}{c}} \right]$	Behind of electron $\left[\ln \left 1 + \frac{v}{c} \right - \frac{\frac{v}{c}}{1 + \frac{v}{c}} \right]$
Electron in afnucl 0,002717146 It is in the direction of motion (id) 654,9nm	3,704855771252357587813986763267e-6 1,8931773275045679448456130994356 eV Lambdaid (v/c=0,002717146) = hc/Ek,id = =654,900051928391151030938994 nm 4,5776826115258921719509259975895e+14 Hz 1,8931773275045679448456130994356 eV	
Electron in afnucl Min = 0,002717146 It should be in the direction of motion (id)	3,704855771252357587813986763267e-6 Lambdaid = c/ fmax= 654,9 nm 4,5776829744999236524660253473813e+14 Hz	
The core of the spectral line H α	1,8931774776185590593983814322796 eV Max Energy	
XXXXXXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXXXX

Electron average speed 0,0027191751 For the wings[4] of spectral line H α (id) and (ad)	3,7104012971124629780821510682521e-6 1,8960110852742780772396666918109 eV Lambda id (v/c= 0,0027191751)=hc/ Ek,id = =653,92124535655764172783570 nm	3,6835939329504166639190831578912e-6 1,8823125509249667924159877724252 eV Lambda ad (v/c= 0,0027191751)=hc/ Ek,ad = =658,68 nm
XXXX Official physics:	Halp ha : E3 – E2 = -1,51eV – (-3,40eV) = 1,89eV	XXXXXXXXXXXXXXXXXXXXXXXXXXXX
Electron in perinucl Max =0,0027212042	 [ln 1-v/c + (v/c) / (1-v/c)] =	
Electron in perinucl Max =0,0027212042	1 eV = - 1,60217657e-19 J , 1 MeV = - 1,60217657e-13 J m e = 0,510998928 MeV/c2 T e kin id =0,510998928 MeV * [ln 1-v/c +	3,6890835289347249992492175652666e-6 1,8851177285881014565911509806897 eV

It should be against the direction of motion (ad) 657,7 nm The core of the spectral line H α	(v/c) / (1-v/c)] = T e kin id (ve/c = 0,0027212042)= =1,8988469699769638601859121477463 eV = = 3,042288125312584936526624287197e- 19 J	Lambda ad = c/ fmin= 657,7 nm 4,5581945871978105519233693173179e+14 Hz 1,8851177285881014565911509806903 eV
Electron in perinucl Max 0,0027212042 It is against the direction of motion (ad) 657,7 nm		3,6890835634754294760932629961125e-6 1,8851177462383644166232590190353 eV Lambda ad (v/c= 0,0027212042)=hc/ Ek,ad = = 657,699993841987869470 nm

$[\ln |1-v/c| + (v/c) / (1-v/c)] = 3,7159509852767516181284672827069e-6$
 $\text{Max } v/c = 0,0027212042$
 $1-v/c = 0,9972787958$ $\ln |1-v/c| = -0,0027249134066830536111720837817173$
 $(v/c) / (1-v/c) = 0,0027286293576683303627902122492917$
 $T e \text{ kin id } (v/c = 0,0027212042) =$
 $= 0,510998928 * [\ln |1-v/c| + (v/c) / (1-v/c)] =$
 $= 0,510998928 * 3,7159509852767516181284672827069e-6 \text{ MeV}/c^2 =$
 $T e \text{ kin id } (v/c = 0,0027212042) = 1,8988469699769638601859121477463 \text{ eV} = -$
 $3,042288125312584936526624287197e-19 \text{ J}$

$[\ln |1-v/c| + (v/c) / (1-v/c)] = 3,704855771252357587813986763267e-6$ $\text{min } v/c = 0,002717146$ $1-v/c = 0,997282854$
 $\ln |1-v/c| = -0,0027208441416388645519324212824174$
 $(v/c) / (1-v/c) = 0,0027245489974101169095202352691807$
 $T e \text{ kin id } (v/c = 0,002717146) =$
 $= 0,510998928 \text{ MeV} * [\ln |1-v/c| + (v/c) / (1-v/c)] =$
 $= 0,510998928 \text{ MeV} * 3,704855771252357587813986763267e-6 =$

Tekinid($v/c=0,002717146$) = $1,8931773275045679448456130994356 \text{ eV} = -3,0332043569830353292046935751998\text{e-}19 \text{ J}$

T e kin id ($v/c = 0,0027212042$) - T e kin id ($v/c = 0,002717146$) =
 $1,8931773275045679448456130994356 \text{ eV} - 1,8988469699769638601859121477463 \text{ eV} = -0,00566964247239591534$
 $0299048311 \text{ eV} = 9,0837683295496073219307119971823\text{e-}22 \text{ J}$

$h^*f = \text{T e kin id } (v/c = 0,0027212042) - \text{T e kin id } (v/c = 0,002717146) = 9,0837683295496073219307119971823\text{e-}22 \text{ J}$

$h = 9,0837683295496073219307119971823\text{e-}22 \text{ J} /$

The wavelength according to Broglie $\lambda = \frac{h}{mv}$

according to Compton $\lambda = \frac{h}{mc}$

$$\lambda = \frac{h}{mc} \left[\frac{\cos^2 \epsilon}{\ln \left| 1 - \frac{v}{c} \cos \epsilon \right| + \frac{\frac{v}{c} \cos \epsilon}{1 - \frac{v}{c} \cos \epsilon}} \right]$$

according to Vlček

$\lambda = h / mc [\ln |1-v/c| + (v/c) / (1-v/c)] = \lambda = h / mc [\ln |1+v/c| - (v/c) / (1+v/c)] =$

Official physics: Halph: $E3 - E2 = -1,51 \text{ eV} - (-3,40 \text{ eV}) = 1,89 \text{ eV}$

Electron in afnucl ... $v/c = 0,002717146$

For $654,9 \text{ nm} \dots \dots [\ln |1-v/c| + (v/c) / (1-v/c)] = 3,704855771252357587813986763267\text{e-}6$

$\lambda = h / mc [\ln |1-v/c| + (v/c) / (1-v/c)] =$

$654,9 \text{ nm} = h / (0,510998928 \text{ MeV}/c) [\ln |1-v/c| + (v/c) / (1-v/c)] =$

$654,9 \text{ nm} = h / (510998,928 \text{ eV}/299792458 \text{ m/s}) [\ln |1-v/c| + (v/c) / (1-v/c)] =$

For $654,9 \text{ nm} \dots \dots [\ln |1-v/c| + (v/c) / (1-v/c)] = 3,704855771252357587813986763267\text{e-}6$

$654,9 \text{ nm} = h / \{(0,0017045089506554564491412255607845 \text{ eVs/m}) *$

$* 3,704855771252357587813986763267\text{e-}6\} =$

$654,9 \text{ nm} = h / \{6,3149598229871678254347982944775\text{e-}9 \text{ eVs/m}\} = h = 654,9\text{e-}9 \text{ m}$

$* \{6,3149598229871678254347982944775\text{e-}9 \text{ eVs/m}\} = h = 4,1356671880742962088772494030533\text{e-}15 \text{ eVs}$

Values of h Units Ref.

$6.62606957(29) \times 10^{-34} \text{ J}\cdot\text{s} \quad [1]$

$4.135667516(91) \times 10^{-15} \text{ eV}\cdot\text{s}$

$[\ln |1-v/c| + (v/c) / (1-v/c)] = 3,7159509852767516181284672827069\text{e-}6$

Max $v/c = 0,0027212042$ $1-v/c = 0,9972787958$ $\ln |1-v/c| = -0,0027249134066830536111720837817173$ $(v/c) / (1-v/c) = 0,0027286293576683303627902122492917$

T e kin id ($v/c = 0,0027212042$) =

$= 0,510998928 * [\ln |1-v/c| + (v/c) / (1-v/c)] =$

$= 0,510998928 * 3,7159509852767516181284672827069\text{e-}6 \text{ MeV}/c^2 =$

$=$

T e kin id ($v/c = 0,0027212042$) = $1,8988469699769638601859121477463 \text{ eV} =$

$= -3,042288125312584936526624287197\text{e-}19 \text{ J}$

$[\ln |1-v/c| + (v/c) / (1-v/c)] = 3,704855771252357587813986763267\text{e-}6$ min $v/c = 0,002717146$ $1-v/c = 0,997282854$

$\ln |1-v/c| = -0,0027208441416388645519324212824174$

$(v/c) / (1-v/c) = 0,0027245489974101169095202352691807$

T e kin id ($v/c = 0,002717146$) =

$= 0,510998928 \text{ MeV} * [\ln |1-v/c| + (v/c) / (1-v/c)] =$

$= 0,510998928 \text{ MeV} * 3,704855771252357587813986763267\text{e-}6 =$

T e kin id ($v/c = 0,002717146$) = $1,8931773275045679448456130994356 \text{ eV} = -$

$3,0332043569830353292046935751998\text{e-}19 \text{ J}$

T e kin id ($v/c = 0,0027212042$) - T e kin id ($v/c = 0,002717146$) =

$1,8931773275045679448456130994356 \text{ eV} - 1,8988469699769638601859121477463 \text{ eV} = -$

$0,005669642472395915340299048311 \text{ eV} =$

$$= 9,0837683295496073219307119971823e-22 \text{ J}$$

$$h^*f = T_{\text{e kin id}} (v/c = 0,0027212042) - T_{\text{e kin id}} (v/c = 0,002717146)$$

$$= 9,0837683295496073219307119971823e-22 \text{ J} \quad h = 9,0837683295496073219307119971823e-22 \text{ J} / \text{The wavelength according to Broglie according to Compton according to Vlcek } \lambda = h / mc [\ln |1-v/c| + (v/c) / (1-v/c)] = \lambda = h / mc [\ln |1+v/c| - (v/c) / (1+v/c)] =$$

$$\text{Official physics: Halphat: } E_3 - E_2 = -1,51\text{eV} - (-3,40\text{eV}) = 1,89\text{eV}$$

$$\text{Electron in afnucl ... } v/c = 0,002717146$$

$$\text{For } 654,9\text{nm} \dots [\ln |1-v/c| + (v/c) / (1-v/c)] = 3,704855771252357587813986763267e-6 \quad \lambda = h / mc [\ln |1-v/c| + (v/c) / (1-v/c)] =$$

$$654,9\text{nm} = h / (0,510998928 \text{ MeV/c}) [\ln |1-v/c| + (v/c) / (1-v/c)] =$$

$$654,9\text{nm} = h / (510998,928 \text{ eV}/299792458 \text{ m/s}) [\ln |1-v/c| + (v/c) / (1-v/c)] =$$

$$\text{For } 654,9\text{nm} \dots [\ln |1-v/c| + (v/c) / (1-v/c)] = 3,704855771252357587813986763267e-6$$

$$654,9\text{nm} = h / \{(0,0017045089506554564491412255607845 \text{ eVs/m}) *$$

$$* 3,704855771252357587813986763267e-6\} =$$

$$654,9\text{nm} = h / \{6,3149598229871678254347982944775e-9 \text{ eVs/m}\} = h = 654,9e-9 \text{ m}$$

$$* \{6,3149598229871678254347982944775e-9 \text{ eVs/m}\} = h = 4,1356671880742962088772494030533e-15 \text{ eVs} \quad \text{Values of } h \text{ Units Ref.}$$

$$6.62606957(29) \times 10^{-34} \text{ J}\cdot\text{s} [1] \quad 4.135667516(91) \times 10^{-15} \text{ eV}\cdot\text{s} \quad \text{https://lubomirvlcek.academia.edu/cv}$$

Physics has experiments that confirm physical principles [1-4].

Mathematics does not know the experiments!

The ability to understand the laws of science binds us, to spread these new ideas persistently among all scientists.

Nobel laureates in physics are mostly physicists, who mainly create and defend physics. Einstein never received a Nobel prize for relativity...

For nearly 100 years ago have been Nobel Prize winners said:

"- The theory of relativity is a mathematical and not a physical theory. "

Change QUALITY

$$\text{Einstein's theory } T_{\text{kin}} = mc^2 - m_0 c^2$$

$$1996: T_{\text{kin id}} = mc^2 [\ln |1-v/c| + (v/c) / (1-v/c)] \quad \text{NEWTON'S}$$

$$T_{\text{kin ad}} = mc^2 [\ln |1+v/c| - (v/c) / (1+v/c)] \quad \text{MAXWELL'S Einstein's works only for } v < 0.1c.$$

<https://www.trendsinphysics.info/data/New-Trends-in-Physics-Extraordinary-proofs.pdf> <https://www.researchgate.net/search?q=Lubomir%20Vlcek> or https://vixra.org/author/lubomir_vlcek <https://www.trendsinphysics.info/> ORCID:

<https://orcid.org/0000-0002-0699-0012>

VLCEK vs EINSTEIN, Exceptional experimental evidence, Critique of the basic's contemporary physics <https://www.youtube.com/watch?v=jAi7Wz18pUE>

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