Deflation Fusion Calculations: including relativistic deuteron

Variable Value	Variable Units	Variable Name	Variable description
Constants:			
1.60218e-19	coul	q	Particle charge
2.99792e+8	m/s	c	Speed of light
6.62608e-34	kg m^2/s	h	Planck's constant
5.39121e-44	s	tp	Planck time
1.00000e-18	s	tatto	One attosecond
9.10939e-31	kg	me0	Rest mass of electron
3.34358e-27	kg	mD0	Rest mass of deuteron
1.67262e-27	kg	mP0	Rest mass of proton
1.25664e-6	N/A^2	mu0	Mu0, the magnetic permeability of the vacuum
8.85420e-12	F/m	e0	Epsilon0, the electric permittivity of the vacuum
3.14159		Pi0	Pi
9.27401e-24	A m^2	muB	Bohr magneton - the electron magnetic dipole moment
4.33074e-27	A m^2	muD	Deuteron magnetic dipole moment
1.41061e-26	A m^2	muP	Proton magnetic moment
9.60000e-16	m	Rdeut	Experimental mean radius of deuteron (0.96 fermi)
8.98755e+9	m/F	Cc	Coulomb constant
6.24151e+18		eVJ	eV per J
Initial estimate for calculation:			
5.12521e-17	m	lambda0	Estimate of lambda for electron
First stage estimates			
1.02504e-16	m	dde	Distance between deuteron and deflated electron centers (=lambda0*2)
7.68782e-17	m	Rdef	Radius of deflated hydrogen state (=lambda0*3/2)
2.19573e+4	N	Fde	Coulomb force between deuteron and electron (=Cc*q*q/dde^2)
2.18280e+8	N	FMde	Magnetic force between deuteron and electron (=3*mu0*muD*muB/(2*Pi0*dde^4))
7.45822e-9	J	Ude	Magnetic binding energy between deuteron and deflated electron (= mu0*muD*muB/(2*Pi0*dde^3))
4.65505e+10	eV	Ude1	Ude in eV (= Ude*eVJ)
4.50143e-12	J	UCde	Coulombic binding energy between deuteron and deflated electron (=2*Cc*q*q/dde)
2.80957e+7	eV	UCde1	Coulombic binding energy UCde in eV (=UCde*eVJ)
4.65786e+10	eV	Utot	Total deflated state binding energy (=UCde1+Ude1)
5.13e-17	m	lambda	Deflated electron max de Broglie wavelength (~=lambda0)
1.29284e-17	kg m/s	pe	Deflated electron momentum (=h/lambda)
3.87575e-9	J	Ee	Deflated electron kinetic energy (=SQRT((pe*c)^2+(me0*c^2)^2)-me0*c^2)
2.41905e+10	eV	Ee1	Deflated electron kinetic energy in eV (=Ee*eVJ)
4.73407e+4		gamma	Electron gamma (=Ee/(me0*c^2)+1)
3.58696e-9	J	ED	Deflated deuteron kinetic energy (=SQRT(((pe)*c)^2+(mD0*c^2)^2)-mD0*c^2)
2.23880e+10	eV	ED1	Deflated deuteron kinetic energy in eV (=ED*eVJ)
1.38974e+1		gammaD	Deuteron gamma (=Ee/(mD0*c^2)+1)
1.07751e+0		ratio	Ratio of (mass deuteron)/(mass electron) (=gammaD*mD0/(gamma*me0))

Variable Value	Variable Units	Variable Name	Variable description
Energy borrowing requirements without Lorentz force considerations			
-3.586e+4	eV	Eb1	Energy to borrow to make state feasible (=Ee1+ED1-Utot)
-5.74542e-15	J	Eb	Energy to borrow to make state feasible (=Eb1/eVJ)
5.19349e-1			Electron kinetic energy / total binding energy (=Ee1/Utot)
1.65686e+3			(Magnetic binding energy)/(Coulombic binding energy) (=Ude1/UCde1)
5.27287e+64	s	th	Heisenberg limit on time in state (=(h/(4*Pi0))/MAX(Eb,1e-99))
5.27287e+82	attoseconds	th1	Heisenberg limit on time in state in attoseconds (=th/tatto)
Centrifugal forces			
2.99792e+8	m/s	se	Speed of electron (=c*SQRT(1-1/(gamma^2)))
2.99015e+8	m/s	sD	Speed of deuteron (=c*SQRT(1-1/(gammaD^2)))
5.11856e-17	m	rD	Radius of deuteron rotation (=dde/(1+se/sD))
5.13186e-17	m	re	Radius of electron rotation (=dde-rD)
7.55249e+7	N	Fce	Centrifugal force on electron (=(me0*gamma)*se^2/re)
8.11680e+7	N	FcD	Centrifugal force on deuteron (=(mD0*gammaD)*sD^2/rD)
Non-Lorentz force balance			
1.56693e+8	N	FcTotal	Total centrifugal force (=Fcd+Fce)
2.18302e+8	N	TfNL	Total non-Lorentz forces (=Fde+FMde)
Lorentz force considerations			
4.02103e+14	T	Be	B of deuteron on electron (=(mu0/(4*Pi0))*muD/(dde^3))
1.93138e+4	N	Lfe	Lorentz force on electron (=q*se*Be)
8.61079e+17	T	BD	B of electron on deuteron (=(mu0/(4*Pi0))*muB/(dde^3))
4.12522e+7	N	LfD	Lorentz force on deuteron (=q*sD*Bd)
2.59574e+8	N	Tf	Total binding (centripetal) force (=Fde+FMde+Lfe+LfD)
0.15900			Lorentz proportion of binding force (=(Lfe+LfD)/(Fde+FMde+Lfe+LfD))
Miscellaneous values			
3.88733e+5	N	Fcas	Casimir force upper limit approximation =(h*c*Pi0/(480*lambda^4))*(Pi0*(lambda/2)^2)
9.29750e+23	Hz	Freqe	Frequency of electron orbit (=se/(2*Pi0*re))
9.29750e+23	Hz	FreqD	Frequency of deuteron orbit (=sD/(2*Pi0*rD))
1.75132e+33	m/s^2	ae	acceleration of electron (=se^2/re)
1.74678e+33	m/s^2	aD	Acceleration of deuteron (=sD^2/rD)
8.95916e-26	kg	mdH	Mass of deflated hydrogen (=me0*gamma+mD0*gammaD)
3.34449e-27	kg	mH	Mass of hydrogen (=me0+mD0)
26.78779			Mass ratio (=mdH/mH)