

ADAS Subroutine bdcf7

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subroutine bdcf7(n,l,qd,jsn,z0,nshell,nc,numel,alfa,z1,z1,z2,z3,  
&                zs,x0,x1,x2,xmax,h,f,c)
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C ***** fortran77 program: bdcf7.for *****

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C Purpose: Calculates a numerical radial wave function in a distorted
C Coulomb potential described by shell screening.

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C The code permits a search for screening parameters given
C the eigenenergy of for the energy given the screening
C parameters

C (original by A. Burgess, DAMTP, University of Cambridge)

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C Subroutine:

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C input : (i*4) n = principal quantum number

C input : (i*4) l = orbital quantum number

C input : (i*4) qd = quantum defect for valence electron

C input : (i*4) jsn = -1 => Jucys potential form adopted

C = 0 => Slater potential form adopted

C input : (i*4) z0 = nuclear charge

C input : (i*4) nshell = number of screening shells

C input : (i*4) nc() = principal quantum number of screening shell
C 1st dim: index of screening shells

C input : (i*4) numel() = number of electrons in screening shell

C i/o : (r*8) alfa() = screening parameters

C 1st dim: screening shell index.

C input : (r*8) z1() =

C input : (r*8) z1 =

C input : (r*8) z2 =

C input : (r*8) z3 =

C input : (r*8) zs() =

C input : (r*8) x0 =

C input : (r*8) x1 =

C input : (r*8) x2 =

C input : (r*8) xmax =

C input : (r*8) h =

C

C output: (r*8) f() = wave function tabulation

C output: (r*8) c =

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C Routines:

routine	source	brief description
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zeff1	adas	
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bdcf3	adas	
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bdcf4	adas	
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fcf6	adas	
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i4unit	adas	fetch unit number for output of messages
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C
C Author: William Osborn (Tessella support services plc)
C
C Date: 4th july 1996
C
C Update: M O'Mullane 19-12-01 removed junk from > column 72.
C
C
C Update: HP Summers 24/05/04 restructure and added standard warning
C
C
C Unix-idl port:
C
C Version: 1.1 Date: 04-07-96
C Modified: William Osborn
C - first version.
C
C Version: 1.2 Date: 19-12-01
C Modified: Martin O'Mullane
C - removed junk from > column 72.
C
C Version: 1.3 Date: 25-05-2004
C Modified: H P Summers
C - restructure.
C
C Version: 1.4 Date: 17-05-2007
C Modified: Allan Whiteford
C - Updated comments as part of subroutine documentation
C procedure.

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C-----
      INTEGER          JSN,          L,          N,          NC(10)
      INTEGER          NSHELL,       NUMEL(10)
      REAL*8           ALFA(10),     C,          F(1000),     H
      REAL*8           QD,            X0,          X1,          X2
      REAL*8           XMAX,         Z0,          Z1,          Z2
      REAL*8           Z3,            ZL(1000),   ZS(100)

```