

```
=====
C SUBROUTINE ToTruncatedG      :
C   Transform X from Gaussian space to truncated Gaussian space to avoid singular geometry
c   A : THE DISTANCE BETWEEN TRUNCATED POINT AND MEAN
C   =====
```

```
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```

```
SUBROUTINE ToTruncatedG(X, A, XT)
```

```
USE ERFI_INT
```

```
USE ERF_INT
```

```
USE UMACH_INT
```

```
INCLUDE "link_fnl_shared.h"
```

```
C IMPLICIT NONE
```

```
DOUBLE PRECISION XXMU_IN(200), XXSIG_IN(200)
```

```
DOUBLE PRECISION X(30),XT(30), A(30), TA(30), TB(30),XSIG(30),
```

```
1 PHI_A(30), PHI_B(30), RTMP, RTMP2,XXMU(30),XXSIG(30)
```

```
REAL*8 NMU(30), NSIG(30), XMU(30), SIG(30)
```

```
COMMON /SR02/ XMU,SIG, NMU, NSIG, NYQ, N
```

```
DO I=1,N
```

```
XXMU(I) = NMU(I)
```

```
XXSIG(I) = NSIG(I)
```

```
ENDDO
```

```
TA = XXMU-A
```

```
TB = XXMU+A
```

```
DO I = 1,N
```

```
RTMP = (TA(I) - XXMU(I))/(XXSIG(I)*DSQRT(2.0D0))
```

```
PHI_A(I) = 0.5D0*(1.0D0 + DERF(RTMP) )
```

```
ENDDO
```

```
DO I = 1,N
```

```
RTMP = (X(I) - XXMU(I))/(XXSIG(I)*DSQRT(2.0D0))
```

```
RTMP = 0.5D0*(1.0D0 + DERF(RTMP) )
```

```
RTMP = RTMP*(1.0D0 - 2.0D0*PHI_A(I)) + PHI_A(I)
```

```
RTMP2 = 2.0D0*RTMP -1.0D0
```

```
IF (RTMP2 .NE. 1.0D0 .AND. RTMP2 .NE. -1.0D0 ) THEN
```

```
XT(I) = DERFI(RTMP2)*XXSIG(I)*DSQRT(2.0D0) + XXMU(I)
```

```
ELSE
```

```
IF (RTMP2 .EQ. 1.0D0 ) XT(I) = TB(I)
```

```
IF (RTMP2 .EQ. -1.0D0 ) XT(I) = TA(I)
```

```
ENDIF
```

```
ENDDO
```

```
C PRINT*, 'TA(I) = ', TA(1:9)
```

```
C PRINT*, 'XXMU(I) = ', XXMU(1:9)
```

```
C PRINT*, 'TB(I) = ', TB(1:9)
```

```
C
```

```
RETURN
```

```
END
```