<u>**Appendix-B**</u>

Programme of Lagranges's formula with Pade apprroximation for interpolating α_s as a function of frequency (ω).

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C     LANGRAGE'S FORMULA WIT PADE APPROXIMATION FOR
C     RATIONAL FUNCTION TO PLOT ALP V/S FREQUENCY
C     X=FEQUENCY
C      Y=ALP
      IMPLICIT DOUBLE PRECISION(A-H,O-Z)
      DO 10 I=1,150
      X=FLOAT(I)*0.001
       CALL POLINT(3,X,Y)
      ALP=Y
      WRITE(3,*)X,ALP
 10   CONTINUE
      STOP
      END

      SUBROUTINE POLINT(N,X,Y)
      IMPLICIT DOUBLE PRECISION (A-H,O-Z)
      PARAMETER (NMAX=3)
      DIMENSION XA(3),YA(3),C(NMAX),D(NMAX)
      SAVE XA,YA
C     DATA YA=ALPHA, XA= FREQUENCY TAKEN FROM EXPERIMENTAL DATA
      DATA YA/.0007,.002,.0045/
      DATA XA/.0122,.0397,.144/
      DIF=ABS(X-XA(1))
      NS=1
      DO 11 I=1,N
       DIFT=ABS(X-XA(I))
       IF (DIFT.LT.DIF) THEN
        NS=I
        DIF=DIFT
       ENDIF
       C(I)=YA(I)
       D(I)=YA(I)
 11   CONTINUE
      Y=YA(NS)
      NS=NS-1
      DO 13 M=1,N-1
       DO 12 I=1,N-M
        HO=XA(I)-X
        HP=XA(I+M)-X
        W=C(I+1)-D(I)
        DEN=HO-HP
        IF(DEN.EQ.0.)PAUSE
        DEN=W/DEN
        D(I)=HP*DEN
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```
      C(I)=HO*DEN
12    CONTINUE
     IF (2*NS.LT.N-M)THEN
      DY=C(NS+1)
     ELSE
      DY=D(NS)
      NS=NS-1
     ENDIF
     Y=Y+DY
13   CONTINUE
     RETURN
    END
```