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10 '      Fourier Synthesis
20 '
30 '      AMSTRAD BASIC
40 '
50 '      Brian James ,   March 1985
60 '
70 c$=CHR$(13)
90 KEY 135,"mode 1:ink 0,1:ink 1,24"+c$+" list "
100 KEY 137," edit ": KEY 128," goto "
120 SPEED KEY 12,2
130 SPEED WRITE 1
170 '
180 DIM a(250),b(250),c(250)
185 '
190 MODE 0      ' for 16 colours
200 nn=6        ' number of terms
210 am=30       ' maximum amplitude
220 INK 0,11    ' blue sky
230 '
240 FOR i= 1 TO 15
250 INK i,RND*26 ' set colours
260 NEXT
270 '
280 FOR n= 1 TO nn ' Each wavelength
290 a(n)=RND*80/n  ' amplitudes
300 b(n)=RND*2*PI  ' phases
310 c(n)= RND*15   ' colours
320 NEXT
325 PRINT: PRINT" Fourier Synthesis"
330 '
340 FOR x=0 TO 639 STEP 4
350 PLOT x,0,0     ' at bottom
360 y=10
370 k=2*PI*x/640
380 '
390 FOR n= 1 TO nn 'incr. frequencies
400 y=y+a(n)*(1+SIN(n*k+b(n))) 'add waves
410 DRAW x,y,c(n)  ' draw upwards
420 NEXT n
430 '
440 NEXT x          ' go right
450 '
460 FOR i= 1 TO 3000:NEXT 'pause
470 RUN
500 '
6000 WHILE 1:SAVE "":WEND

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