

World Congress on  
**BIOPOLYMERS AND BIOPLASTICS**  
 &  
 World Congress and Expo on  
**RECYCLING**

August 29 -30, 2018  
 Berlin, Germany

### A classic diatomic chain

**Ming B Y**  
 University of Georgia, USA

A classic diatomic chain is studied by means of the recurrence relations method, The Laplace transform of the momentum autocorrelation function of a tagged oscillator in the chain has three separated branch cuts resulting in acoustic and optical branches. By use of convolution theorem, analytical expressions for the two branches are derived as expansions of even-order Bessel functions. The expansion coefficients are integrals of real and complex elliptic functions for the acoustic and optical branches, respectively. By means of addition theorem,

the expansion coefficients are obtained as integrals of elliptic function along the real axis in a complex plane for the acoustic branch and integrals along a contour parallel to the imaginary axis for the optic branch, respectively. The asymptotic behaviour of Bessel functions guarantees the momentum autocorrelation vanishes at large time . The broken down of end-front symmetry of the set of recurrants brings about the irreversibility of the momentum autocorrelation function of an infinite diatomic chain.

### Biography

Ming B Y has graduated from Jilin University in 1961. Before retiring, he worked as a Lecturer in Zhengzhou Coal Manage College, China, and a Visiting Adjunct Lecturer in University of Georgia, USA. Currently he is still active in studies in theoretical condensed matter physics and nonequilibrium statistical theory of closed and open systems.

mingbyu@gmail.com

### Notes: