

## **ELECTRONIC "NEARSIGHTEDNESS" OF MATTER: THE CONCEPT AND SOME QUANTITATIVE ESTIMATES**

WALTER KOHN

The concept of electronic nearsightedness, first articulated by the author a few years ago, may be loosely stated as follows: Static electronic properties, like the electron density  $n(r)$  or the pair correlation function  $g(r, r')$ , referring to a finite region  $R$  of a large system of interacting atoms, are only weakly affected by a perturbing potential  $v(r'')$ , no matter how large, provided that all points  $r''$  are sufficiently distant from all points in  $R$ , like  $r$  and  $r'$ , and that the electronic chemical potential  $\mu$ , relative to the potential  $v(r)$  in  $R$ , is kept constant. Following a qualitative discussion of this concept, the paper will offer some quantitative estimates for simple models of metals and insulators.