1145-VJ-679 **Zengxiang Tong***, Department of Mathematics, Otterbein University, Westerville, OH 43081, **Jingzhong Zhang** (zjz2271@163.com), School of Computer Science and Educational So, Guangzhou University, Guangzhou, Guangdong 510006, Peoples Rep of China, and **Hongguang Fu** (fu_hongguang@hotmail.com), University of Electronic Science of China, Chengdu, Sichuan , Peoples Rep of China. *Calculus without Limit Theory.*

This paper establishes calculus upon two physical facts: (1) an average velocity is always between two instantaneous velocities, and (2) the motion of an object is determined once its velocity has been determined. It directly defines derivative and definite integral on an ordered field, proves the fundamental theorem of calculus with no auxiliary conditions, easily reveals the common properties of derivatives, and obtains derivative formulas for elementary functions. Further discussion shows that for continuously differentiable functions, the new definitions are in accord with the traditional concepts. This is a result of the authors' research in the field of educational mathematics, which hopes to provide a more elementary and effective way to teach calculus. (Received September 12, 2018)