1131-28-26 **Victor Michael Bogdan*** (vmbogdan@gmail.com), 6652 Plaza Via, Apt 109, Irving, TX 75039.
An elementary approach to the Theory of Lebesgue and Dirac Integral Spaces.

P. Dirac in *Principles of Quantum Mechanics*, published in 1930, employed intuitive concept of integrals involving complex-valued functions to describe the evolution of dynamical systems of Quantum Mechanics in probabilistic terms. A. Kolmogorov using the *Lebesgue Integration Theory* proved the *Strong Law of Large Numbers* and thus put the *Theory of Probability and Statistics* on a precise mathematical footing.

We shall present a system of axioms involving only elementary notions of set theory, limits, and continuous functions, to define Dirac and Lebesgue integral spaces as a quintuple $(F(Y), M(Y), L(Y), \int, L_0(Y))$, where Y is either C or R, from which one can derive the entire theory of such spaces, (see a note by A. Bogdan and V. Bogdan in these Notices for definition.)

We shall outline the development of the theory of such spaces and present their construction based on the results of the following two papers: W. Bogdanowicz, *A generalization of the Lebesgue-Bochner-Stieltjes integral and a new approach to the theory of integration,* Proc. Nat. Acad. Sci. USA 53 (1965): 492-498; W. Bogdanowicz, *An approach to the theory of Lebesgue-Bochner measurable functions and to the theory of measure,* Mathematische Annalen 164 (1966):251-269. (Received May 23, 2017)