

1086-G5-1206 **Sang-Gu Lee*** (sglee@skku.edu), Department of Mathematics, Sungkyunkwan University, Suwon, 440-746, South Korea, and **Kyung-Won Kim**. *Sage E-books on Linear Algebra and Calculus*. Preliminary report.

Calculus and Linear Algebra are arguably the most popular math subjects in colleges. We believe that students' learning and understanding of these subjects can be improved substantially if we incorporate the latest advanced information technologies in our teaching. Our experiences indicate that CAS tools can be used to improve student's ability in solving real world problems. In particular, we found that the open source mathematics program 'Sage' (<http://sagemath.org>) can be a good candidate to achieve our goal of improving students' interest and learning Calculus and Linear Algebra. To develop a systematic program of incorporating information technologies into our teaching curriculum, we have (i) developed (and used in class) a Laboratory Manual for Calculus with Sage, (ii) developed e-book for i-Pad in order to maximize the use of its contents and (iii) developed a Linear Algebra with Sage Textbook that has several interesting features such as QR codes to pre-made movie clips of each lectures and QR codes to customized Sage single cells with ready-made Sage codes.

In this talk, we will introduce what we have done for innovative teaching of Linear Algebra and Calculus with Sage. (Received September 26, 2012)