1064-14-52   **Shin-Yao Jow*** (`jows@math.upenn.edu`), University of Pennsylvania, Department of Mathematics, 209 South 33rd Street, Philadelphia, PA 19104-6395. *Multigraded Fujita approximation.*

The original Fujita approximation theorem states that the volume of a big divisor D on a projective variety X can always be approximated arbitrarily closely by the self-intersection number of an ample divisor on a birational modification of X. One can also formulate it in terms of graded linear series as follows: let $W_\bullet = \{W_k\}$ be the complete graded linear series associated to a big divisor D:

$$W_k = H^0\big(X, \mathcal{O}_X(kD)\big).$$

For each fixed positive integer p, define $W_\bullet^{(p)}$ to be the graded linear subseries of $W_\bullet$ generated by W_p:

$$W_m^{(p)} = \begin{cases} 0, & \text{if } p \nmid m; \\ \text{Image}\big(S^k W_p \to W_{kp}\big), & \text{if } m = kp. \end{cases}$$

Then the volume of $W_\bullet^{(p)}$ approaches the volume of $W_\bullet$ as $p \to \infty$. We will show that, under this formulation, the Fujita approximation theorem can be generalized to the case of multigraded linear series. (Received August 23, 2010)