1084-31-340   **Mykhailo Bilogliadov*** (`mbilogli@math.okstate.edu`), Department of Mathematics, Oklahoma State University, Stillwater, OK 74078. *THE EQUILIBRIUM POINTS OF A FIELD OF POINT CHARGES AT THE VERTICES OF A REGULAR POLYGON.* Preliminary report.

We will be considering a field generated by a system of point charges placed at the vertices of a regular polygon. Using the symmetries of a regular polygon we derive an integral representation of a potential of the system under consideration. Then using an integral representation of the potential we prove a theorem on a number of equilibrium points of that system. The result obtained in this work gives a partial answer for a conjecture by J. C. Maxwell on the maximal number of equilibrium points of a system comprised by point charges. (Received September 04, 2012)