

**Laser Plasma Accelerators, R. BINGHAM,**  
Rutherford Appleton Laboratory, Chilton, Didcot,  
Oxon, OX11 0QX - Particle acceleration by relativistic  
electron plasma waves generated by intense lasers have  
been demonstrated in a number of experiments.  
Accelerating fields of the order of 1 GV/cm, with  
electrons accelerated to 40 MeV in under one  
millimetre. This makes these fields the largest ever  
produced in laboratory experiments. These first  
experiments are very much "first generation" plasma  
accelerator experiments and are concerned with  
demonstrating proof-of-principle acceleration of test  
particles in a relativistic plasma waves. Attention is  
now being focused on other important aspects of  
plasma accelerators such as beam current and beam  
quality and not just accelerating gradients. A summary  
will be presented of the recent experimental results and  
theory together with an outline of future experiments.  
We will address important issues relevant to future  
prospects of laser plasma accelerators.