THE OCTOBER MEETING IN COLLEGE PARK

The five hundred seventeenth meeting of the American Mathematical Society was held at the University of Maryland, College Park, Maryland, on Saturday, October 22, 1955. The meeting was attended by about 175 persons, including 145 members of the Society.

By invitation of the Committee to Select Hour Speakers for Eastern Sectional Meetings Professor Paul Olum of Cornell University delivered an address entitled *The fundamental problem of topology for 2-manifolds* at a general session presided over by Professor L. W. Cohen. Sessions for contributed papers were held in the morning and afternoon, presided over by Professors I. N. Herstein, G. S. S. Ludford, and C. O. Oakley.

Abstracts of the papers presented follow. Those having the letter "*t*" after their numbers were read by title. Where a paper has more than one author, that author whose name is followed by "(p)" presented it.

Algebra and Theory of Numbers

1. W. E. Baxter: *Lie simplicity of a special class of associative rings.*

In a forthcoming paper I. N. Herstein proves that if A is a simple ring of characteristic different from 2 and 3, then the only proper Lie ideals of $[A, A]$ are contained in the center of A. In the present paper, the situations when A has characteristic 2 and characteristic 3 are studied and Herstein's results are extended to these cases. In fact it is proved that the proper Lie ideals of $[A, A]$ are contained in the center except for the case $A=2\times 2$ matrices over a field of characteristic 2. These results are then applied to extend results of Hattori and Iwahori on invariant subrings of simple rings with descending chain conditions. (Received September 2, 1955.)

2*t*. H. E. Campbell: *On the Casimir operator.*

Let A be either an associative, an alternative or a Lie algebra over an arbitrary field F and let $t(R_x)$ be the trace of the right multiplication R_x for x in A. It is proved that if the bilinear form $t(R_xR_y)$ is nondegenerate then the Casimir operator of the mapping $x\rightarrow R_x$ is the identity transformation. If A is associative and $x\rightarrow S_x$ is a representation of A and the bilinear form $t(S_xS_y)$ is nondegenerate, then A is known to be semi-simple and the representation is completely reducible. If A is also simple and none of the irreducible components of the representation are zero then it is proved that the Casimir operator of $x\rightarrow S_x$ is either the identity transformation or zero according as $t(R_xR_y)$ is nondegenerate or not. Hence if A is not simple the Casimir operator can be taken to have the form diag $\{I, 0\}$. Similar results are obtained for the case where A is alternative and the characteristic of F does not divide the dimension of A. For Lie algebras of prime characteristic the Casimir operator is used together with the enveloping associative algebra of the R_x to obtain the Levi theorem for the special case where $AN=0$ (N the radical of A), and A/N has nondegenerate Killing form. Research sponsored by U. S. Air Force through the Office of Scientific Research. (Received August 31, 1955.)