

Abstract Submitted
for the DPP04 Meeting of
The American Physical Society

Sorting Category: 5.6.4

Facility and Programmable Power Supply Development for the PEGASUS ST¹ B.T. LEWICKI, D.J. BATTAGLIA, S.P. BURKE, N.W. EIDIETIS, B.A. FORD, R.J. FONCK, G.D. GARSTKA, M.P. KOZAR, J.C. QUINN, E.A. UNTERBERG, G.R. WINZ, University of Wisconsin-Madison — A rebuild of the PEGASUS ST facility with several major upgrades is in its final stages, and low-power ohmic operation has begun. A new low-inductance, fast-response toroidal field system allows variation of B_t within a few ms. Additional poloidal field coils, including divertor coils, provide shaping control. New modular IGBT and IGCT switching power supplies have been developed to provide full programmability control of all the magnet coils. The toroidal and poloidal systems are powered by several 900 V/16 KA IGBT switch assemblies, while the OH system requires a 2700 V/48 KA IGCT system. An array of IGBT switch modules has been successfully deployed for low-power OH operation — albeit with full power for poloidal and toroidal fields — while initial deployment of the IGCT system is expected this Fall. Together, these systems provide increased V-sec, programmability for V_{loop} and flexible position and shape control, and increased toroidal field strength.

¹Work supported by U.S. D.O.E. Grant DE-FG02-96ER54375.

Prefer Oral Session
 Prefer Poster Session

Gregory Garstka
garstka@engr.wisc.edu
University of Wisconsin-Madison

Special instructions: Please place as number 5 out of 7 Pegasus posters, before Eidielis et al. and after Burke et al.

Date submitted: July 23, 2004

Electronic form version 1.3

lat5243.gif Fri Jul 23 03:50:57 EDT 2004

```
\documentstyle[11pt,apsab]{article}
\nofiles
\MeetingID{DPP04}
%\DateSubmitted{20040723}
\SubmittingMemberSurname{Garstka}
\SubmittingMemberGivenName{Gregory}
%\SubmittingMemberID{60017983}
\SubmittingMemberEmail{garstka@engr.wisc.edu}
\SubmittingMemberAffil{University of Wisconsin-Madison}
\PresentationType{poster}
\SortCategory{5.6.4}{}{}
\SpecialInstructions{Please place as number 5 out of 7 Pegasus posters, before Eidielis et al. and after Burke et al.}

\begin{document}
\Title{Facility and Programmable Power Supply Development for the {\sc Pegasus} ST}
\titlenote{Work supported by U.S. D.O.E. Grant DE-FG02-96ER54375.}
\AuthorSurname{Lewicki}
\AuthorGivenName{B.T.}
\AuthorSurname{Battaglia}
\AuthorGivenName{D.J.}
\AuthorSurname{Burke}
\AuthorGivenName{S.P.}
\AuthorSurname{Eidielis}
\AuthorGivenName{N.W.}
\AuthorSurname{Ford}
```

```
\AuthorGivenName{B.A.}
\AuthorSurname{Fonck}
\AuthorGivenName{R.J.}
\AuthorSurname{Garstka}
\AuthorGivenName{G.D.}
\AuthorSurname{Kozar}
\AuthorGivenName{M.P.}
\AuthorSurname{Quinn}
\AuthorGivenName{J.C.}
\AuthorSurname{Unterberg}
\AuthorGivenName{E.A.}
\AuthorSurname{Winz}
\AuthorGivenName{G.R.}
\AuthorAffil{University of Wisconsin-Madison}
E

\begin{abstract}
A rebuild of the {\sc Pegasus} ST facility with several
major upgrades is in its final stages, and low-power ohmic
operation has begun. A new low-inductance, fast-response
toroidal field system allows variation of  $B_t$  within a
few ms. Additional poloidal field coils, including divertor
coils, provide shaping control. New modular IGBT and IGCT
switching power supplies have been developed to provide full
programmability control of all the magnet coils. The
toroidal and poloidal systems are powered by several 900
V/16 KA IGBT switch assemblies, while the OH system requires
a 2700 V/48 KA IGCT system. An array of IGBT switch modules
has been successfully deployed for low-power OH operation
--- albeit with full power for poloidal and toroidal fields
--- while initial deployment of the IGCT system is expected
this Fall. Together, these systems provide increased V-sec,
programmability for  $V_{loop}$  and flexible position and
shape control, and increased toroidal field strength.
\end{abstract}
\end{document}
```