Principal Researcher	Yasuo Fukui	Number ofResearchers	5
Research Institution · Department · Title	Professor, Department of Astrophysics Graduate School of Science, NagoyaUniversity	Location of Institution	Nagoya
Title ofProject	An ObservationalStudyof Expanding Gas ShellintheGalaxyandtheMagellanicClouds		
Abstract of ResearchProject	Supernova is an explosive event that occursattheendofthelifeofmassivestars.Itiswell-knownthat the supernovae produce heavy elements like iron and eject them into the interstellar space. The heavy elements control the cooling of interstellar mediumthroughtheirradiative transitions,which affects the gas condensation processtoformstarsandstellarclusters. Inaddition,supernovae sweep uptheir surrounding interstellar gastoformanexpandingshell. The expandingshell islikelytoinduce (ortrigger) formation ofthenextgenerationstarsby compressing the neighboring molecular clouds and/or by fragmentation and condensationoftheshellitself. However, observationaldata are justtoo few to carryoutdetailedanalysis of the dynamical effects of the expanding shell, and the study of such effects is no better than model calculations based on many assumptions. In this research project, we intend to reveal the distribution and dynamical motion of molecular expanding shells in the Milky Way and the Magellanic Clouds through a complete surveywiththeNANTENmmandsub-mmtelescopeof NagoyaUniversityinstalledinChile. Theaimoftheprojectistoclarifytheformationprocessofstarsandstellarclustersinthethreegalaxiesin terms of the dynamicaleffects of the expanding shells by comparing the physical properties of molecular gasandassociatedyoungstarsandstellarclusters.		
References	"On the Mass Spectrum of Giant Molecular Clouds in the Large Magellanic Cloud"Y. Fukui,N.Mizuno, R.Yamaguchi,A.Mizuno,andT.OnishiPubl.oftheAstron.Soc.Japan,53,L41-L44,2001 "FirstResults ofaCOSurveyoftheLargeMagellanicCloudwithNANTEN; GiantMolecularCloudsasFormationSitesofPopulousClusters" Y. Fukui, N. Mizuno, R. Yamaguchi, A. Mizuno, T. Onishi, H. Ogawa, Y. Yonekura, A. Kawamura, K. Tachihara, K. Xiao, N. Yamaguchi, A. Hara, T. Hayakawa, S. Kato, R. Abe, H. Saito, S. Mano, K. Matsunaga, Y. Mine, Y. Moriguchi, H. Aoyama, S. Asayama,N. Yoshikawa, and M. Rubio Publ. of the Astron.Soc.Japan,51,745-749,Plate25-27,1999 "DiscoveryoftheCarinaFlarewithNANTEN;EvidenceforaSupershellThat Triggered theFormationofStarsandMassiveMolecularClouds" Y. Fukui, T. Onishi, R. Abe, A. Kawamura, K. Tachihara, R. Yamaguchi, A. Mizuno, and H. Ogawa Publ.oftheAstron.Soc.Japan,51,751-764,1999		
Term of Project	Fiscal years 2002-2005. (4years)		

Budget Allocation (inthousandofyen)	FY2002	FY2003	FY2004	FY2005	FY2006	TOTAL
	34,400	24,300	21,900	4,200	0	84,800

Homepage Address	http://www.a.phys.nagoya-u.ac.jp/nanten