

Cornell University, Office of Sponsored Programs
Awards Received in January 2022

Principal Investigator	Department	Sponsor	Project Title	OSP#	Amount
Alcaine, Samuel	CALS Food Science	USDA -> USDA National Institute of Food and Agriculture	ASSESSMENT OF RESISTANCE TO COLICINOGENIC SYNTHETIC PHAGE ANTIMICROBIAL SYSTEM	139499	\$120,000
Altier, Craig	Population Medicine & Diagnostic Science	USDA -> USDA National Institute of Food and Agriculture	PREVENTING SALMONELLA DISEASE AND CARRIAGE BY INHIBITING PATHOGEN VIRULENCE	140088	\$612,000
Baneux, Philippe	Biomedical Sciences	AALAS -> The American Society Of Laboratory Animal Practitioners	2022 ASLAP SUMMER FELLOWSHIP	141918	\$5,000
Barcheck, Grace	Earth & Atmospheric Sciences	DOI -> United States Geological Survey	DEEP LEARNING WITH REGIONAL AMPHIBIOUS SEISMIC DATA TO IMPROVE EARTHQUAKE DETECTION AND PICKING IN THE ALASKA-ALEUTIAN TRENCH	140219	\$61,019
Barrett, Chris	Dyson - Sponsored Activity	African Economic Research Consortium	STRUCTURAL TRANSFORMATION OF AFRICAN AGRICULTURE AND RURAL SPACES (STAARS)	142453	\$74,744
Barry, Colleen	Public Policy	HHS -> PHS -> National Institutes of Health (Through: The Johns Hopkins University)	CONSUMER-DIRECTED HEALTH PLANS AND SUBSTANCE USE DISORDER TREATMENT	140980	\$98,513
Bates, Terry	CALS School of Integrative Plant Science	USDA -> USDA National Institute of Food and Agriculture (Through: Carnegie Mellon University)	COLLABORATIVE RESEARCH: NRI: BALANCE PRUNING OF DORMANT GRAPEVINES WITH AUTONOMOUS ROBOTS	139913	\$183,079
Bean, Rachel	Center Astrophysics-Planetary Science	National Aeronautics and Space Administration (Through: NASA -> Jet Propulsion Laboratory)	SIT-COSMOLOGY WITH THE WFIRST HIGH LATITUDE SURVEY SCIENCE INVESTIGATION TEAM	141023	\$22,446
Bean, Rachel	Center Astrophysics-Planetary Science	NASA -> Jet Propulsion Laboratory	RACHEL BEAN'S PARTICIPATION IN THE NASA EUCLID SCIENCE TEAM FY 2022	141338	\$57,000
Bewley, Gregory	Mechanical & Aerospace Engineering	DOD -> DOD US NAVY -> Office of Naval Research (Through: USMD -> University of Maryland College Park)	THREE-DIMENSIONAL EFFECTS ON TURBULENT SHEAR LAYERS	138732	\$420,014
Bowman, J	CALS Lab of O - Ctr Conservation Media	Margaret A. Cargill Philanthropies (Through: National Fish And Wildlife Foundation)	NFWF NORTHERN GREAT PLANS GRASSLANDS VIDEOS FOR PUBLIC EDUCATION AND INTERNET	137439	\$75,000
Butcher, Jonathan	Biomedical Engineering	Additional Ventures LLC	COLLECTIVE NEIGHBORHOOD SIGNALING DRIVING VENTRICULAR GROWTH, MATURATION, AND PATHOGENESIS	141660	\$220,000
Coffman, Ronnie	CALS Global Development	International Service for the Acquisition of Agri-biotech Applications	ISAAA AMERICENTER ADMINISTRATION	23698	\$75,000
Cohen, Itai	Lab. of Atomic & Solid State Physics	National Science Foundation (Through: NSF -> NSF Directorate for Mathematical and Physical Sciences)	DMREF: COLLABORATIVE RESEARCH: DIGITAL MAGNETIC HANDSHAKE MATERIALS, STRUCTURES AND MACHINES	89228	\$59,502
Degaetano, Arthur	CALS Earth and Atmospheric Science	FLORIDA -> Department of Business and Professional Regulation (Through: University of Florida)	DEVELOPMENT OF WIND-DRIVEN RAIN CLIMATOLOGY AND COINCIDENTAL WIND SPEED RETURN PERIOD MAPS FOR FLORIDA AND SURROUNDING COASTAL AREAS	140700	\$87,503

Dell, Nicki	JTC Research	National Science Foundation (Through: Computing Research Association Inc)	COMPUTING INNOVATION FELLOWS 2021 PROJECT	142000	\$277,426
Diel, Diego	Population Medicine & Diagnostic Science	HHS -> PHS -> National Institutes of Health (Through: UIILL -> University of Illinois at Urbana-Champaign)	NOVEL DIAGNOSTIC TOOLS AND ANIMAL MODEL SYSTEM FOR STUDY HUMAN/ANIMAL INTERFACE OF COVID-19	138868	\$1,608,425
Dogan, Timur	Architecture	Park Foundation Inc	DEFINING ITHACA'S 2030 CARBON NEUTRALITY ROADMAP: A NOVEL ENERGY AND CARBON SIMULATION MODEL OF ITHACA'S BUILDING STOCK.	141683	\$84,000
Dshemuchadse, Julia	Materials Science Engineering	National Science Foundation	CAREER: DECODING CRYSTAL GROWTH AND PHASE TRANSFORMATIONS OF COMPLEX STRUCTURES WITH MINIMALIST SELF-ASSEMBLY MODELS	140613	\$580,356
Earls, Christopher	Civil & Environmental Engineering	DOD -> DOD US NAVY -> Office of Naval Research	SCIENTIFIC MACHINE LEARNING ENABLED NEXT GENERATION DESIGN: APPLICATION TO BOND LINES IN SOFT MATERIALS	141548	\$592,752
Ellwood, Ian	CALS Neurobiology & Behavior	Brain and Behavior Research Foundation	A NEW ROLE FOR PREFRONTAL CORTEX DOPAMINE IN ANXIETY	139526	\$70,000
Enayati, Hassan	Yang Tan Institute	United States Department of Education (Through: Department of Human Services Vocational Rehabilitation)	DISABILITY INNOVATION FUND: CAREER ADVANCEMENT INITIATIVE MODEL DEMONSTRATION PROJECT ASSISTANCE	139759	\$2,775,110
Fessenden, Mary	Performing and Media Arts	NYS -> New York State Council on the Arts	NYSCA SUPPORT FOR ORGANIZATIONS - CORNELL CINEMA	141447	\$25,000
Frank, Margaret	CALS School of Integrative Plant Science	United Soybean Board (Through: Donald Danforth Plant Science Center)	RE-ENGINEERING THE SOYBEAN FLOWER TO CAPTURE HYBRID VIGOR	87840	\$11,382
Gibney, Patrick	CALS Food Science	USDA -> USDA National Institute of Food and Agriculture	IDENTIFYING DIASTATIC YEAST SPOILAGE DETERMINANTS TO REDUCE WASTE IN THE BREWING INDUSTRY	139800	\$180,000
Ginsparg, Paul	Cornell Lab Accelerator Sciences & Ed	DOE -> DOE Office of Science (Through: University of Pennsylvania)	COMPLEX QUANTUM SYSTEMS AND THE QUANTUM UNIVERSE	138686	\$390,006
Giordano, Julio	CALS Animal Science	BioTracking Inc.	DEVELOPMENT AND INTEGRATION OF LATERAL FLOW ASSAYS FOR DETERMINATION OF PREGNANCY AND OVARIAN STATUS OF RUMINANTS	141959	\$35,000
Gludish, David	Microbiology and Immunology	HHS -> PHS -> National Institutes of Health	NOVEL ANIMAL MODELS TO DISSECT HOW LUNG MACROPHAGES CONTRIBUTE TO SARS-COV2 ALVEOLAR PATHOLOGY AND RESPIRATORY FAILURE	139034	\$753,819
Gold, Katie	CALS School of Integrative Plant Science	National Collegiate Inventors & Innovators Alliance LLC	AGCESS	142733	\$5,000
Gomes, Carla	Cornell Bowers CIS - IT	Toyota Research Institute Inc	ACCELERATED LEARNING LAB 2.0: PARTNERING WITH AMDD 2.0 TO ACCELERATE SCIENTIFIC KNOWLEDGE AND FUEL CALL CATALYST DEVELOPMENT WITH AUTOMATED EXPERIMENTS AND ARTIFICIAL INTELLIGENCE	142304	\$1,000,000
Goodale, Christine	Ecology and Evolutionary Biology	USDA -> USDA National Institute of Food and Agriculture	MULTI-DECADAL EFFECTS OF CALCIUM ADDITION ON PRIMARY PRODUCTION, MYCORRHIZAL PRODUCTION, AND NUTRIENT ACQUISITION IN A MIXED HARDWOOD FOREST	140322	\$180,000
Gore, Michael	CALS School of Integrative Plant Science	USDA -> USDA National Institute of Food and Agriculture	DSFAS-CIN: INTEGRATING MULTISCALE REMOTE SENSING DATA FOR ENHANCING DATA-DRIVEN PREDICTIVE ANALYTICS IN CROP BREEDING AND MANAGEMENT	140820	\$1,000,000

Hariharan, Bharath	Computer Science	Intelligence Advanced Research Projects Activity (Through: Accenture Global)	MUTATED - MODELING AND UNDERSTANDING USING TEMPORAL ANALYSIS OF TRANSIENT EARTH DATA	93063	\$1,233,171
Holgerson, Meredith	CALS Ecology & Evolutionary Biology	National Science Foundation	CAREER: WHY ARE PONDS BIOGEOCHEMICAL HOTSPOTS? EXAMINING HOW ECOSYSTEM STRUCTURE AND FUNCTION SCALE WITH WATERBODY SIZE	140744	\$850,000
Hormozi, Sarah	Chemical & Biomolecular Engineering	National Science Foundation	THE FLUID MECHANICS OF BACTERIAL SWIMMING IN YIELD STRESS FLUIDS	137179	\$459,414
Howarth, Robert	CALS Ecology & Evolutionary Biology	Park Foundation Inc	THE METHANE PROJECT AT CORNELL: EVALUATING & COMMUNICATING HOW METHANE EMISSIONS FROM SHALE GAS & BLUE HYDROGEN CONTRIBUTE TO CLIMATE DISRUPTION	141657	\$140,000
Hsu, Justin	Computer Science	National Science Foundation	CAREER: SHF: COMPOSITIONAL ANALYSIS OF RANDOMIZED ALGORITHMS	140836	\$566,258
Jena, Debdeep	Electrical & Computer Engineering	SRC -> SRCco Inc (Through: University of Notre Dame)	X-PIEZO WIDE-BANDGAP SEMICONDUCTORS FOR RF/LOGIC HYBRIDS	86844	\$1
Jena, Debdeep	Electrical & Computer Engineering	SRC -> SRCco Inc (Through: University of Notre Dame)	EPITAXIAL HI-K DIELECTRIC AND FERROELECTRIC BOOST IN THE JOHNSON'S FIGURE OF MERIT IN MM-WAVE SCALN/ALN FERROHEMITS	142169	\$249,999
Joachims, Thorsten	Computer Science	National Science Foundation (Through: Computing Research Association Inc)	COMPUTING INNOVATION FELLOWS 2021 PROJECT	142980	\$289,188
Ju, Wendy	JTC Research	National Science Foundation	HCC: MEDIUM: GOALI: CULTURAL DIFFERENCES IN DRIVING INTERACTION	138030	\$799,900
Kao-Kniffin, Jenny	CALS School of Integrative Plant Science	USDA -> USDA National Institute of Food and Agriculture	IMPROVING SOIL QUALITY FOR SUSTAINABLE URBAN AGRICULTURE	140583	\$298,881
Kellogg, Elizabeth	Molecular Biology and Genetics	HHS -> PHS -> National Institutes of Health	STRUCTURAL BASIS OF PROGRAMMABLE DNA-INSERTION VIA CRYO-EM STUDIES OF CRISPR-ASSOCIATED TNSC	138904	\$1,628,913
Ketterings, Quirine	CALS Animal Science	NYS -> New York State Department of Agriculture and Markets	CORNELL AGRICULTURAL ENVIRONMENTAL STEWARDSHIP PROGRAM, NUTRIENT MANAGEMENT SPEAR PROGRAM	142027	\$2,000,000
Knoblauch, Wayne	Dyson - Sponsored Activity	USDA -> USDA National Institute of Food and Agriculture (Through: NYS -> New York State Department of Agriculture and Markets)	ADDRESSING FARM STRESS IN NY THROUGH MULTIFACETED METHODOLOGIES	140520	\$500,000
Krosch, Amy	Psychology	National Science Foundation (Through: Yale University)	COLLABORATIVE RESEARCH: USING BEHAVIORAL, COMPUTATIONAL, AND NEURAL APPROACHES TO UNDERSTAND CORRECTION OF FIRST IMPRESSIONS	137081	\$93,454
Leak, Tashara	Nutritional Sciences	HHS -> PHS -> National Institutes of Health	THE PRELIMINARY EFFICACY OF A CULTURALLY TAILORED, TELEHEALTH LIFESTYLE INTERVENTION FOR BLACK ADOLESCENT GIRLS WITH PREDIABETES: A PILOT RANDOMIZED CONTROLLED TRIAL	138467	\$446,996
Lee, Esak	Biomedical Engineering	HHS -> PHS -> National Institutes of Health	A BIOENGINEERED MODEL OF TUMOR VESSEL INTERACTIONS IN PANCREATIC CANCER	138895	\$405,428
Lewis, Nikole	Center Astrophysics-Planetary Science	NASA -> Jet Propulsion Laboratory	DEVELOPMENT OF A 2D CIRCULATION MODEL FOR RAPID EXPLORATION OF EXOPLANET ATMOSPHERES - YEAR 3	139289	\$56,500

Lewis, Nikole	Center Astrophysics-Planetary Science	National Aeronautics and Space Administration (Through: American Museum of Natural History)	READ BETWEEN THE LINES: DETERMINING ATMOSPHERE AND BULK COMPOSITIONS FOR PLANETARY MASS OBJECTS USING SPECTRAL RETRIEVALS	140118	\$209,999
Lighthall, Shari	CALS School of Integrative Plant Science	NYS -> New York State Department of Agriculture and Markets	CORNELL URBAN AGRICULTURE EDUCATION AND OUTREACH PROGRAM (2021-2022)	141120	\$250,000
Ma, Minglin	CALS Biological & Environmental Engr	Juvenile Diabetes Research Foundation International	DEVELOPING A NEW INTRAVASCULAR DEVICE	142010	\$110,000
Mahowald, Natalie	Earth & Atmospheric Sciences	National Aeronautics and Space Administration (Through: NASA -> Jet Propulsion Laboratory)	EARTH SURFACE MINERAL DUST SOURCE INVESTIGATION (EMIT)	88424	\$210,000
Marohn, John	Chemistry and Chemical Biology	HHS -> PHS -> National Institutes of Health	SINGLE MOLECULE LOCALIZATION MICROSCOPY VIA ANGSTROM-SCALE THREE-DIMENSIONAL IMAGING OF ELECTRON SPIN LABELS	140901	\$1,223,240
Mays, Jacob	Civil & Environmental Engineering	United States Department of Energy (Through: Lawrence Berkeley National Laboratory)	PREPARING SOUTHEAST MARKETS FOR RELIABLE AND AFFORDABLE INTEGRATION OF SOLAR INTO OPERATIONS AND PLANNING	139603	\$149,999
Mehta, Saurabh	Nutritional Sciences	UN -> United Nations Children's Fund (Through: International Institute Of Tropical Agriculture Inc.)	NATIONAL FOOD CONSUMPTION AND MICRONUTRIENT SURVEY	142835	\$40,000
Mezey, Jason	CALS Computational Biology	USDA -> USDA National Institute of Food and Agriculture	APPLYING DEEP REASONING TO THE MODELING OF CROSS SPECIES GENE REGULATORY NETWORKS	140430	\$180,000
Miller, William	CALS School of Integrative Plant Science	New York State Flower Industries Research and Education Fund Inc	IS GERBERA SUSCEPTIBLE TO CHILLING INJURY?	142327	\$2,950
Moridi, Atieh	Mechanical & Aerospace Engineering	NASA -> Jet Propulsion Laboratory	DEVELOPMENT OF ULTRA-HIGH TEMPERATURE METAL MATRIX COMPOSITES COATINGS	139184	\$45,000
Orr, David	CALS Biological & Environmental Engr	NYS -> New York State Department of Transportation	NEW YORK STATE LOCAL TECHNICAL ASSISTANCE PROGRAM	93193	\$1,470,742
Pawlowski, Wojtek	CALS School of Integrative Plant Science	USDA -> USDA National Institute of Food and Agriculture	REGULATORY ADAPTATION OF TRANSPOSABLE ELEMENTS AND THEIR EFFECT ON GENE EXPRESSION IN MAIZE AND THE ANDROPOGONEAE	140427	\$180,000
Petro, Elaine	Mechanical & Aerospace Engineering	NASA -> Jet Propulsion Laboratory	INVESTIGATING ALTERNATIVE MOLECULAR SURVEYING TECHNIQUES WITH OASIS (ORGANIC ANALYSIS SYSTEM UTILIZING ION SPRAYS)	139225	\$44,000
Pritchard, Matthew	Earth & Atmospheric Sciences	NASA -> Jet Propulsion Laboratory	SATELLITE OBSERVATIONS OF VOLCANO TOPOGRAPHY CHANGE: A CRITICAL BUT IMMATURE MEASUREMENT FOR ERUPTION FORECAST MODELS	139098	\$124,412
Rangarajan, Anu	CALS School of Integrative Plant Science	NYS -> New York State Department of Agriculture and Markets	EQUITABLE FARM FUTURES - CORNELL SMALL FARMS PROGRAM	141091	\$400,000
Reyna, Valerie	Human Development	DOD -> DOD Office of the Secretary of Defense (Through: USMD -> University of Maryland College Park)	TESTING DIFFERENT MESSAGES FOR COVID-19 VACCINE INTENTIONS	137716	\$86,093

Riedl, Rachel	Einaudi Center for Intl Studies	Carnegie Corporation of New York (Through: UCAL ->The Regents of the University of California on behalf of its Riverside Campus)	BRIDGING GAPS IN KNOWLEDGE ABOUT AFRICA THROUGH THE UFAHAMU AFRICA PODCAST	136501	\$8,580
Rudd, Brian	Microbiology and Immunology	HHS -> PHS -> National Institutes of Health	IMPACT OF EARLY MICROBIAL EXPOSURE ON IMMUNE ONTOGENY	139745	\$1,056,097
Russell, David	Microbiology and Immunology	HHS -> PHS -> National Institutes of Health (Through: Rutgers The State University of New Jersey)	BACTERIAL AND HOST HETEROGENEITY IN TB LATENCY, PERSISTENCE AND PROGRESSION	137442	\$1,613,118
Sacks, Gavin	CALS Food Science	Brewers Association	PREDICTING CORROSION RISK IN SOUR BEERS STORED IN ALUMINUM BEVERAGE CANS AS A FUNCTION OF CHEMICAL COMPOSITION	140146	\$31,520
Schlom, Darrell	Materials Science Engineering	National Science Foundation (Through: Clark Atlanta University)	NSF-PREM: EMERGENT INTERFACE MATERIALS	138917	\$585,000
Schuler, Krysten	Population Medicine & Diagnostic Science	Michigan Department of Natural Resources (Through: Michigan State University)	SOP4CWD DASHBOARD: A WEB APPLICATION FOR DISEASE VISUALIZATION AND DATA-DRIVEN DECISIONS	136078	\$67,000
Searle, Jeremy	CALS Ecology & Evolutionary Biology	Sigma Xi The Scientific Research Society Inc	INVESTIGATING THE RELATIONSHIP BETWEEN KARYOTYPE AND LOCAL ADAPTATION IN WILD HOUSE MICE	142993	\$900
Sethi, Suresh	CALS Natural Resources	Alaska Pacific University	MODELING FISHING ACTIVITY AND FISHING GEAR MODIFICATION DYNAMICS FOR BENTHIC ECOSYSTEMS: DEVELOPMENT AND TESTING FOR ALASKAN WATERS	90627	\$63,736
Sethupathy, Praveen	Biomedical Sciences	HHS -> PHS -> NIH -> NIH National Institute of Diabetes and Digestive and Kidney Diseases (Through: University of North Carolina Chapel Hill)	IDENTIFYING MICROBIAL, EPITHELIAL AND IMMUNE CELL INTERACTIONS THAT MEDIATE MUCOSAL HOMEOSTASIS AND DETERMINE IBD PHENOTYPES	87974	\$26,393
Srikrishnan, Vivek	CALS Biological & Environmental Engr	DOE -> DOE Office of Science (Through: Pennsylvania State University)	UNDERSTANDING MULTI-STRESSOR AND MULTI-SCALE DRIVERS OF FEEDBACKS, CASCADING FAILURES, AND RISK MANAGEMENT PATHWAYS WITHIN COMPLEX MSD SYSTEMS	138710	\$533,922
Steinschneider, Scott	CALS Biological & Environmental Engr	United States Department of Energy (Through: Pacific Northwest National Laboratory)	VALUE OF FLOW FORECASTS TO POWER SYSTEM ANALYTICS	142554	\$86,350
Sun, Ying	CALS School of Integrative Plant Science	NASA -> Jet Propulsion Laboratory	RESOLVING THE DIURNAL CYCLE OF SOLAR-INDUCED CHLOROPHYLL FLUORESCENCE (SIF) FROM STOMATE TO LANDSCAPE - YEAR 3	143071	\$51,000
Tiffany, Jennifer	Bronfenbrenner Ctr forTranslational Rsch	USDA -> USDA Agricultural Marketing Service (Through: NYS -> New York State Department of Agriculture and Markets)	FARMERS' MARKET NUTRITION PROGRAM IN NEW YORK CITY - 2021-22	140527	\$50,000
Tiffany, Jennifer	Bronfenbrenner Ctr forTranslational Rsch	HHS -> PHS -> Centers for Disease Control and Prevention (Through: YU -> Albert Einstein College of Medicine Inc)	PANDEMIC PROJECT - BRONX, NY	141500	\$60,000
Todhunter, Rory	Clinical Sciences	EveryCat Health Foundation	DETERMINING THE GENETICS UNDERLYING DIABETES MELLITUS IN THE DOMESTIC CAT	141383	\$34,906

Van de Walle, Gerlinde	Baker Institute for Animal Health	USDA -> USDA National Institute of Food and Agriculture	A NOVEL BIOTHERAPEUTIC TO CONTROL METHICILLIN-RESISTANT S. AUREUS (MRSA)	139766	\$642,000
Vilhuber, Lars	Labor Dynamics Institute	Alfred P Sloan Foundation (Through: Massachusetts Institute of Technology)	INNOVATIONS IN DATA AND EXPERIMENTS FOR ACTION INITIATIVE (IDEA)	89490	\$37,500
Vilhuber, Lars	Labor Dynamics Institute	Alfred P Sloan Foundation	IMPROVING RESULTS REPORTING IN RANDOMIZED CONTROL TRIAL REGISTRIES	140604	\$214,901
Watkins, James	CALS Natural Resources	Great Lakes Fishery Commission	ON A SLIPPERY SLOPE: CAUSES AND CONSEQUENCES OF RECENT DECLINE OF MYSIDS ON THE LAKE MICHIGAN FISHERY	139997	\$195,377
Weber, Courtney	CALS School of Integrative Plant Science	USDA -> USDA National Institute of Food and Agriculture (Through: North Carolina State University)	DEVELOPMENT OF NEXT GENERATION PROPAGATION STRATEGIES TO INCREASE THE RESILIENCE OF THE US STRAWBERRY PRODUCTION CHAIN	139920	\$179,990
Worobo, Randy	CALS Food Science	USDA -> USDA National Institute of Food and Agriculture	METAGENOMIC DISCOVERY AND EXPRESSION OF CLASS IIA BACTERIOCINS FROM FERMENTED FOODS TO IMPROVE FOOD SAFETY AND QUALITY FROM FARM TO FORK	139606	\$120,000
Yang, Rong	Chemical & Biomolecular Engineering	National Science Foundation	CAREER: SOLVENT-FREE SYNTHESIS OF POLYMERIC NANOSTRUCTURES WITH TARGETED PROPERTIES	140459	\$649,997
Zhang, K. Max	Mechanical & Aerospace Engineering	NYS -> New York State Energy Research and Development Authority (Through: Northeast States for Coordinated Air Use Management)	DEVELOPING A NEW BUILDING DOWNWASH ALGORITHM FOR AERMOD	93011	\$26,000
Zhao, Qing	Electrical & Computer Engineering	ISRAEL -> Government of Israel - Israeli Ministry Of Defense, Mission to the USA	A STOCHASTIC APPROACH TO FEDERATED LEARNING: ADAPTIVITY AND LABEL AND COMMUNICATION EFFICIENCY	140574	\$420,000